



United States  
Department of  
Agriculture

In cooperation with  
the Arkansas Agricultural  
Experiment Station



NRCS

Natural  
Resources  
Conservation  
Service

# Soil Survey of Union County, Arkansas





# How To Use This Soil Survey

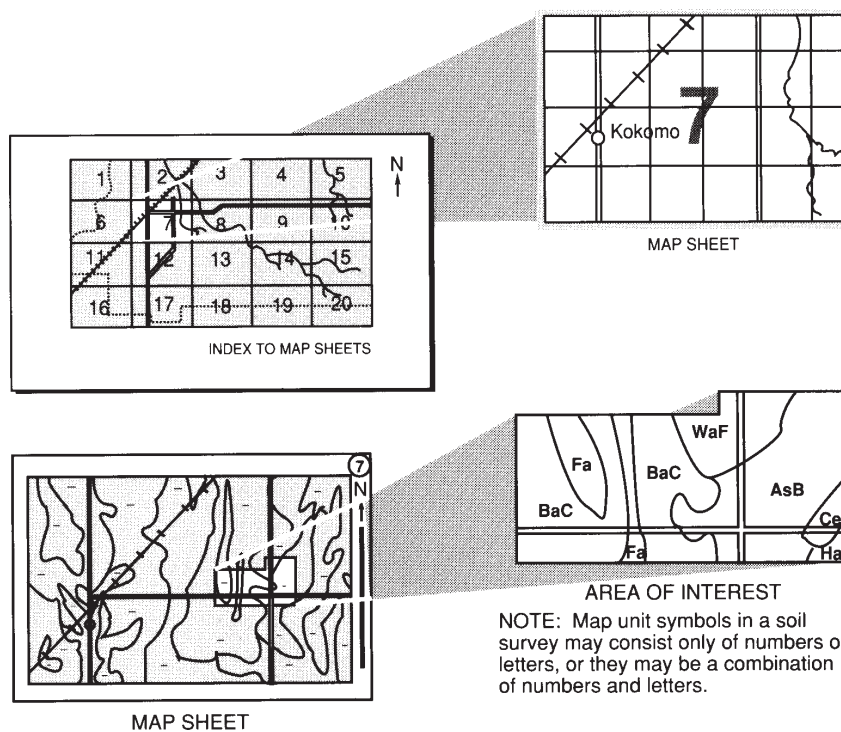
## Detailed Soil Maps

The detailed soil maps can be useful in planning the use and management of small areas.

To find information about your area of interest, locate that area on the **Index to Map Sheets**. Note the number of the map sheet and turn to that sheet.

Locate your area of interest on the map sheet. Note the map unit symbols that are in that area. Turn to the **Contents**, which lists the map units by symbol and name and shows the page where each map unit is described.

The **Contents** shows which table has data on a specific land use for each detailed soil map unit. Also see the **Contents** for sections of this publication that may address your specific needs.



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This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (formerly the Soil Conservation Service) has leadership for the Federal part of the National Cooperative Soil Survey.

Major fieldwork for this soil survey was completed in 1991. Soil names and descriptions were approved in 1992. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1992. This survey was made cooperatively by the Natural Resources Conservation Service and the Arkansas Agricultural Experiment Station. The survey is part of the technical assistance furnished to the Union County Soil and Water Conservation District.

Soil maps in this survey may be copied without permission. Enlargement of these maps, however, could cause misunderstanding of the detail of mapping. If enlarged, maps do not show the small areas of contrasting soils that could have been shown at a larger scale.

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**Cover: Pasture and hayland in an area of Smithdale fine sandy loam, 3 to 8 percent slopes.**

*Additional information about the Nation's natural resources is available online from the Natural Resources Conservation Service at <http://www.nrcs.usda.gov>.*

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# Foreword

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This soil survey contains information that affects land use planning in this survey area. It contains predictions of soil behavior for selected land uses. The survey also highlights soil limitations, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

This soil survey is designed for many different users. Farmers, ranchers, foresters, and agronomists can use it to evaluate the potential of the soil and the management needed for maximum food and fiber production. Planners, community officials, engineers, developers, builders, and home buyers can use the survey to plan land use, select sites for construction, and identify special practices needed to ensure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the survey to help them understand, protect, and enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. The information in this report is intended to identify soil properties that are used in making various land use or land treatment decisions. Statements made in this report are intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are shallow to bedrock. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. The location of each soil is shown on the detailed soil maps. Each soil in the survey area is described. Information on specific uses is given for each soil. Help in using this publication and additional information are available at the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.



Kalven L. Trice  
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# Soil Survey of Union County, Arkansas

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By Leodis Williams, Natural Resources Conservation Service

Fieldwork by Leodis Williams and Chris Avery,  
Natural Resources Conservation Service

United States Department of Agriculture,  
Natural Resources Conservation Service,  
in cooperation with  
the Arkansas Agricultural Experiment Station

UNION COUNTY is in the south-central part of Arkansas (fig. 1). It is the largest county in the state. The total area of the county is about 675,693 acres, or about 1,056 square miles. The county is roughly rectangular and is about 52 miles from east to west and 25 miles from north to south.

Union County is bounded on the west by Columbia County; on the north by Ouachita, Calhoun, and Bradley Counties; on the east by Ashley County. It is bounded on the south by Union and Claiborne Parishes, Louisiana.

In 2000, the population of Union County was 45,629. El Dorado, which has a population of 21,530, is the county seat. Other communities, in order of decreasing population, include Smackover (2,005), Huttig (731), Junction City (721), Norphlet (822), Strong (651), Calion (516), and Felsenthal (152).

## General Nature of the County

In this section, some physical and environmental factors that affect Union County are described. These factors are farming, physiography, drainage, and climate.

### Farming

Early settlers came to the area that is now Union County in 1824. A few came from Virginia, but the majority were from Alabama, the Carolinas, Georgia, and Mississippi. Some came from New Orleans by boat. Union County was formed in 1829 from parts of Hempstead and Clark Counties (Green, 1936). In 1843, El Dorado was named the county seat. Early settlers cleared small tracts of land. They grew corn and vegetables for their own use and cotton as a money crop.

In 1987, about 6 percent of Union County, or about 40,500 acres, was farmland. Between 1964 and 2002, the number of farms decreased from 768 to 342 (USDC, 1972 and 2004). Over the same period, the average size increased from 101 to 118 acres. The rest of the county consists of extensive wooded tracts; cities and towns; transportation and utility facilities; other built-up areas, such as homes, industrial

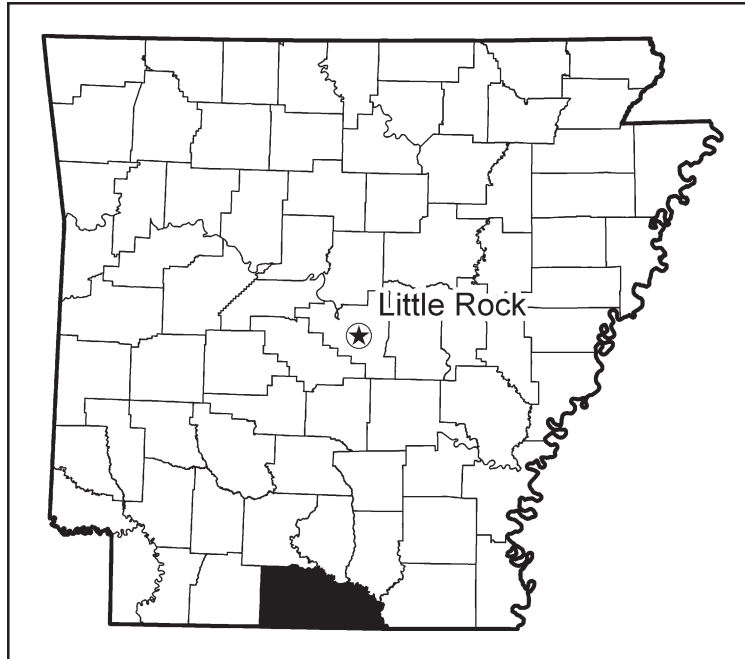


Figure 1.—Location of Union County in Arkansas.

developments, and oil fields; and federal land within the Felsenthal Wildlife Management Area.

As row-crop farming declined, the majority of the county reverted to timber. The county is now about 90 percent forestland. The principal species are loblolly pine and shortleaf pine on the uplands and terraces and hardwood species, such as oak, gum, and hickory, on the flood plains.

Today, the timber and oil industries are the most important parts of the economy of the county. Most of the acreage is managed for the production of pulpwood, poles, and saw logs (fig. 2). The remaining land is dominantly used for pasture and forage crops. A very few small acreages are used for sweet potatoes, fruits, winter small grains, and corn. Livestock and poultry production are also economically important in the county.

## Physiography and Drainage

The geologic deposits at the surface in Union County are unconsolidated sediments laid down by water (Haley and others, 1976).

Topographically, Union County can be divided into two main areas: the level and nearly level terraces and flood plains along the Ouachita River and Smackover Creek and the nearly level to steep coastal plain. The topography of the flood plains and terraces consists mostly of broad flats and natural levees along abandon channels with a few nearly level to gently sloping low ridges. The major soils on the terraces are Amy, Smithton, and Gurdon soils. The major soils on the flood plains are Bibb, Guyton, and Una soils.

The topography of the coastal plain is mostly nearly level to steep, except for a few areas of level and nearly level, upland flats. The major soils in the nearly level to steep areas are Briley, Darden, Harleston, Rosalie, Ruston, Sacul, Sawyer, Smithdale, and Warnock soils. The major soil on the upland flats is Trebloc silt loam, 0 to 2 percent slopes.



**Figure 2.—A pine plantation used for the production of pulpwood, poles, and saw logs.**

Drainage is mainly from south to north in the northwestern part of Union County, from north to south in the southwestern part, and from west to east in the eastern part. The divides separating the drainage systems are marked roughly by a line from the western boundary along U.S. Highway 82 east to El Dorado and then splitting northeast along Highway 15 to the county line and southeast along U.S. Highway 82 to Strong and then south along Highway 275.

Smackover Creek and its tributaries drain the northwestern parts of the county. Big Cornie Creek, Cornie Bayou, and Bayou de Loutre and their tributaries carry most of the drainage in the southwestern part of the county. Caney Bayou, Horsehead Creek, Lapile Creek, and Frank Lapere Creek and their tributaries carry most of the drainage in the eastern part of the county.

The major tributary streams to the main drainageways are Beech Creek, Camp Creek, Holmes Creek, Three Creek, Mill Creek, Little Fabular Slough, Dry Creek, Richland Creek, Flat Creek, and Buckhorn Slough. These streams have numerous smaller tributaries throughout the county.

## **Climate**

Prepared by the National Climatic Data Center, Asheville, North Carolina.

Table 1 gives data on temperature and precipitation for the survey area as recorded at El Dorado, Arkansas, in the period 1971 to 2000. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on length of the growing season.

In winter, the average temperature is 45 degrees F and the average daily minimum temperature is 34 degrees. The lowest temperature on record, which occurred at El Dorado on January 12, 1962, is -10 degrees. In summer, the average temperature is

80 degrees and the average daily maximum temperature is 91 degrees. The highest recorded temperature, which occurred on July 16, 1954, is 107 degrees.

Growing degree days are shown in table 1. They are equivalent to "heat units." During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (40 degrees F). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

The average annual precipitation is about 51 inches. Of this total, 24 inches, or about 47 percent, usually falls in April through September. The growing season for most crops falls within this period. In 2 years out of 10, the rainfall in April through September is less than 10 inches. The heaviest 1-day rainfall during the period of record was 10.65 inches at El Dorado on April 26, 1958. Thunderstorms occur on about 57 days each year, and most occur in summer.

Average seasonal snowfall is 2 inches. The greatest snow depth at any one time during the period of record was 9 inches. On the average, 1 day a year has at least 1 inch of snow on the ground, but the number of such days varies greatly from year to year.

The average relative humidity in mid-afternoon is about 60 percent. Humidity is higher at night, and the average at dawn is about 80 percent. The sun shines 71 percent of the time possible in summer and 51 percent in winter. The prevailing wind is from the southwest. Average windspeed is highest, 10 miles per hour, in spring.

Union County has long, hot summers and rather cool winters. An occasional cold wave brings near-freezing or sub-freezing temperatures but seldom much snow. Precipitation is fairly heavy throughout the year, and prolonged droughts are rare. Summer precipitation falls mainly as afternoon thunderstorms and is adequate for all crops.

Severe local storms, including tornadoes, strike in or near the area occasionally. The storms are of short duration, and the damage they cause is variable and spotty.

## **How This Survey Was Made**

This survey was made to provide information about the soils and miscellaneous areas in the survey area. The information includes a description of the soils and miscellaneous areas and their location and a discussion of their suitability, limitations, and management for specified uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They dug many holes to study the soil profile, which is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

The soils and miscellaneous areas in the survey area are in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept or model of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an



understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.





# Detailed Soil Map Units

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The map units delineated on the detailed soil maps in this survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this section, along with the maps, can be used to determine the suitability and potential of a unit for specific uses. They also can be used to plan the management needed for those uses.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. The contrasting components are mentioned in the map unit descriptions. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis

of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Smithdale fine sandy loam, 3 to 8 percent slopes, is one of several phases in the Smithdale series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes. A *soil complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils are somewhat similar in all areas. Rosalie-Warnock complex, 1 to 8 percent slopes, is an example.

Most map units include small scattered areas of soils other than those for which the map unit is named. Some of these included soils have properties that differ substantially from those of the major soil or soils. Such differences could significantly affect use and management of the soils in the map unit. The included soils are identified in each map unit description. Some small areas of strongly contrasting soils are identified by a special symbol on the soil maps.

This survey includes *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Oil-waste land is an example. Miscellaneous areas are shown on the soil maps.

Table 4 gives the acreage and proportionate extent of each map unit. Other tables give properties of the soils and the limitations, capabilities, and potentials for many uses. The Glossary defines many of the terms used in describing the soils or miscellaneous areas. The "Use and Management" section describes potentials and limitations of the soils for specific land uses.

## ***AaA—Amy silt loam, 0 to 1 percent slopes, rarely flooded***

### ***Map Unit Composition***

#### **Major components**

Amy and similar soils: 85 percent

#### **Contrasting inclusions**

Gurdon soils: 5 percent

Guyton soils: 5 percent

Smithton soils: 3 percent

Aquults: 2 percent

### ***Characteristics of the Amy Soil***

#### **Soil properties and qualities**

*MLRA:* 133B—Western Coastal Plain

*Landform:* Stream terraces

*Parent material:* Silty alluvium

*Slope:* 0 to 1 percent

*Drainage class:* Poorly drained

*Slowest saturated hydraulic conductivity:* Slow (about 0.42 micrometers/sec)

*Available water capacity:* High (about 10.2 inches)

*Shrink-swell potential:* Low (about 1.5 percent linear extensibility)

*Flooding:* Rare

*Depth to seasonal water saturation:* At the surface to a depth of about 12 inches

*Type of seasonal water saturation:* Apparent

*Runoff class:* High

*Nonirrigated land capability classification:* 3w

**Typical profile**

*Surface layer:*

0 to 5 inches; grayish brown silt loam; strongly acid

*Subsurface layer:*

5 to 16 inches; light gray silt loam that has yellowish brown masses of oxidized iron; very strongly acid

*Subsoil:*

16 to 33 inches; gray silt loam that has dark yellowish brown masses of oxidized iron; very strongly acid

33 to 48 inches; light brownish gray silty clay loam that has yellowish brown masses of oxidized iron; very strongly acid

*Substratum:*

48 to 80 inches; light brownish gray silty clay loam that has yellowish brown masses of oxidized iron and dark brown iron-manganese concretions; very strongly acid

***AgB—Amy-Gurdon complex, 0 to 3 percent slopes, rarely flooded***

***Map Unit Composition***

**Major components**

Amy and similar soils: 50 percent

Gurdon and similar soils: 40 percent

**Contrasting inclusions**

Guyton soils: 5 percent

Smithton soils: 3 percent

Aquents: 2 percent

***Characteristics of the Amy Soil***

**Soil properties and qualities**

*MLRA:* 133B—Western Coastal Plain

*Landform:* Stream terraces

*Parent material:* Silty alluvium

*Slope:* 0 to 3 percent

*Drainage class:* Poorly drained

*Slowest saturated hydraulic conductivity:* Slow (about 0.42 micrometers/sec)

*Available water capacity:* High (about 10.2 inches)

*Shrink-swell potential:* Low (about 1.5 percent linear extensibility)

*Flooding:* Rare

*Depth to seasonal water saturation:* At the surface to a depth of about 12 inches

*Type of seasonal water saturation:* Apparent

*Runoff class:* Very high

*Nonirrigated land capability classification:* 3w

**Typical profile**

*Surface layer:*

0 to 5 inches; grayish brown silt loam; strongly acid

*Subsurface layer:*

5 to 16 inches; light gray silt loam that has yellowish brown masses of oxidized iron; very strongly acid

*Subsoil:*

16 to 33 inches; gray silt loam that has dark yellowish brown masses of oxidized iron; very strongly acid

33 to 48 inches; light brownish gray silty clay loam that has yellowish brown masses of oxidized iron; very strongly acid

*Substratum:*

48 to 80 inches; light brownish gray silty clay loam that has yellowish brown masses of oxidized iron and dark brown iron-manganese concretions; very strongly acid

***Characteristics of the Gurdon Soil***

**Soil properties and qualities**

*MLRA:* 133B—Western Coastal Plain

*Landform:* Stream terraces

*Parent material:* Loamy alluvium

*Slope:* 0 to 3 percent

*Drainage class:* Somewhat poorly drained

*Slowest saturated hydraulic conductivity:* Moderately slow (about 1.40 micrometers/sec)

*Available water capacity:* High (about 10.2 inches)

*Shrink-swell potential:* Low (about 1.5 percent linear extensibility)

*Flooding:* Rare

*Depth to seasonal water saturation:* About 12 to 24 inches

*Type of seasonal water saturation:* Apparent

*Runoff class:* Very high

*Nonirrigated land capability classification:* 2w

**Typical profile**

*Surface layer:*

0 to 3 inches; grayish brown silt loam; very strongly acid

*Subsurface layer:*

3 to 10 inches; light yellowish brown silt loam that has brownish yellow and pale brown masses of oxidized iron; very strongly acid

*Subsoil:*

10 to 21 inches; brownish yellow silt loam that has light yellowish brown masses of oxidized iron and light brownish gray iron depletions; very strongly acid

21 to 35 inches; yellowish brown silt loam that has brownish yellow masses of oxidized iron and gray iron depletions; very strongly acid

35 to 47 inches; brownish yellow silt loam that has yellowish brown masses of oxidized iron and light gray iron depletions; very strongly acid

47 to 63 inches; gray, yellowish brown, and brownish yellow silty clay loam; very strongly acid

63 to 80 inches; gray and yellowish brown silty clay loam; very strongly acid

***AnC—Angie fine sandy loam, 1 to 8 percent slopes***

***Map Unit Composition***

**Major components**

Angie and similar soils: 85 percent

**Contrasting inclusions**

Aquults: 5 percent

Rosalie soils: 3 percent

Bibb soils: 3 percent

Harleston soils: 2 percent

Sawyer soils: 2 percent

### ***Characteristics of the Angie Soil***

#### **Soil properties and qualities**

*MLRA:* 133B—Western Coastal Plain

*Landform:* Hills

*Hillslope position:* Side slopes

*Parent material:* Loamy and clayey, marine deposits

*Slope:* 1 to 8 percent

*Drainage class:* Moderately well drained

*Slowest saturated hydraulic conductivity:* Slow (about 0.42 micrometers/sec)

*Available water capacity:* High (about 10.7 inches)

*Shrink-swell potential:* High (about 7.5 percent linear extensibility)

*Depth to seasonal water saturation:* About 36 to 60 inches

*Type of seasonal water saturation:* Apparent

*Runoff class:* High

*Nonirrigated land capability classification:* 3e

#### **Typical profile**

*Surface layer:*

0 to 5 inches; brown fine sandy loam; strongly acid

*Subsurface layer:*

5 to 12 inches; yellowish brown fine sandy loam; strongly acid

*Subsoil:*

12 to 18 inches; yellowish brown silty clay loam that has yellowish brown masses of oxidized iron; strongly acid

18 to 27 inches; yellowish brown silty clay loam that has brownish yellow and yellowish red masses of oxidized iron; strongly acid

27 to 33 inches; brownish yellow silty clay loam that has yellowish red masses of oxidized iron and light brownish gray iron depletions; very strongly acid

33 to 51 inches; gray silty clay that has brownish yellow and red masses of oxidized iron; very strongly acid

51 to 64 inches; gray silty clay that has brownish yellow masses of oxidized iron; very strongly acid

64 to 80 inches; light brownish gray silty clay loam that has yellowish brown masses of oxidized iron; extremely acid

### ***AtA—Aquents, 0 to 1 percent slopes, rarely flooded***

#### ***Map Unit Composition***

#### **Major components**

Aquents and similar soils: 100 percent

#### **Contrasting inclusions**

None

### ***Characteristics of the Aquents***

#### **Soil properties and qualities**

*MLRA:* 133B—Western Coastal Plain

*Landform:* Flood plains along the Ouachita River

*Parent material:* Silty alluvium

*Slope:* 0 to 1 percent

*Drainage class:* Poorly drained

*Slowest saturated hydraulic conductivity:* Not rated

*Available water capacity:* Not rated

*Shrink-swell potential:* Not rated

*Flooding:* Rare

*Depth to seasonal water saturation:* At the surface to a depth of about 12 inches

*Type of seasonal water saturation:* Apparent

*Runoff class:* High

*Nonirrigated land capability classification:* 5w

The Aqueuts consist of soil dredged from the Ouachita River during the construction of locks and dams on the river. The dredged material was placed in areas adjacent to the river channel. The soil contains no identifiable diagnostic horizons. Texture ranges from loamy fine sand to clay.

Most areas of this map unit are used as sites for recreation. The sites include picnic facilities, camping facilities, boat launching ramps, and parking areas.

***BbA—Bibb fine sandy loam, 0 to 1 percent slopes,  
frequently flooded***

***Map Unit Composition***

**Major components**

Bibb and similar soils: 85 percent

**Contrasting inclusions**

Gurdon soils: 5 percent

Aqueuts: 5 percent

Guyton soils: 5 percent

***Characteristics of the Bibb Soil***

**Soil properties and qualities**

*MLRA:* 133B—Western Coastal Plain

*Landform:* Flood plains

*Parent material:* Loamy and sandy alluvium

*Slope:* 0 to 1 percent

*Drainage class:* Poorly drained

*Slowest saturated hydraulic conductivity:* Moderate (about 4.00 micrometers/sec)

*Available water capacity:* Moderate (about 9.0 inches)

*Shrink-swell potential:* Low (about 1.5 percent linear extensibility)

*Flooding:* Frequent

*Depth to seasonal water saturation:* About 6 to 12 inches

*Type of seasonal water saturation:* Apparent

*Runoff class:* High

*Nonirrigated land capability classification:* 5w

**Typical profile**

*Surface layer:*

0 to 5 inches; brown fine sandy loam; very strongly acid

5 to 10 inches; gray fine sandy loam; very strongly acid

*Substratum:*

10 to 35 inches; gray sandy loam that has strong brown masses of oxidized iron;  
very strongly acid

35 to 80 inches; gray sandy loam that has yellowish brown masses of oxidized  
iron; very strongly acid

## ***BrC—Briley loamy fine sand, 1 to 8 percent slopes***

### ***Map Unit Composition***

#### **Major components**

Briley and similar soils: 85 percent

#### **Contrasting inclusions**

Warnock soils: 5 percent

Smithdale soils: 5 percent

Ruston soils: 5 percent

### ***Characteristics of the Briley Soil***

#### **Soil properties and qualities**

*MLRA:* 133B—Western Coastal Plain

*Landform:* Hills

*Hillslope position:* Crests and side slopes

*Parent material:* Sandy and loamy, marine deposits

*Slope:* 1 to 8 percent

*Drainage class:* Well drained

*Slowest saturated hydraulic conductivity:* Moderate (about 4.00 micrometers/sec)

*Available water capacity:* Moderate (about 7.7 inches)

*Shrink-swell potential:* Low (about 1.5 percent linear extensibility)

*Depth to seasonal water saturation:* More than 6 feet

*Runoff class:* Low

*Nonirrigated land capability classification:* 3e

#### **Typical profile**

*Surface layer:*

0 to 12 inches; brown loamy fine sand; slightly acid

*Subsurface layer:*

12 to 21 inches; pale brown loamy fine sand; strongly acid

*Subsoil:*

21 to 45 inches; red sandy clay loam; strongly acid

45 to 80 inches; red sandy clay loam; very strongly acid

## ***DAM—Dam***

This map unit consists of loamy and clayey soil material that has been used to form earthen dams for ponds and lakes. These areas are typically sloping to moderately steep. Areas of this map unit have limited use for grazing.

## ***DdC—Darden loamy fine sand, 1 to 8 percent slopes***

### ***Map Unit Composition***

#### **Major components**

Darden and similar soils: 90 percent

#### **Contrasting inclusions**

Warnock soils: 5 percent

Smithdale soils: 5 percent

### ***Characteristics of the Darden Soil***

#### **Soil properties and qualities**

*MLRA:* 133B—Western Coastal Plain



*Landform:* Hills

*Parent material:* Sandy, marine deposits

*Slope:* 1 to 8 percent

*Drainage class:* Excessively drained

*Slowest saturated hydraulic conductivity:* Rapid (about 42.00 micrometers/sec)

*Available water capacity:* Low (about 4.2 inches)

*Shrink-swell potential:* Low (about 1.5 percent linear extensibility)

*Depth to seasonal water saturation:* More than 6 feet

*Runoff class:* Low

*Nonirrigated land capability classification:* 4s

**Typical profile**

*Surface layer:*

0 to 11 inches; dark brown loamy fine sand; strongly acid

*Subsoil:*

11 to 25 inches; yellowish brown loamy fine sand; very strongly acid

25 to 50 inches; strong brown loamy fine sand; very strongly acid

50 to 80 inches; strong brown loamy sand; very strongly acid

***DdD—Darden loamy fine sand, 8 to 15 percent slopes***

***Map Unit Composition***

**Major components**

Darden and similar soils: 90 percent

**Contrasting inclusions**

Warnock soils: 5 percent

Smithdale soils: 5 percent

***Characteristics of the Darden Soil***

**Soil properties and qualities**

*MLRA:* 133B—Western Coastal Plain

*Landform:* Hillslopes

*Parent material:* Sandy, marine deposits

*Slope:* 8 to 15 percent

*Drainage class:* Excessively drained

*Slowest saturated hydraulic conductivity:* Rapid (about 42.00 micrometers/sec)

*Available water capacity:* Low (about 4.2 inches)

*Shrink-swell potential:* Low (about 1.5 percent linear extensibility)

*Depth to seasonal water saturation:* More than 6 feet

*Runoff class:* Low

*Nonirrigated land capability classification:* 6e

**Typical profile**

*Surface layer:*

0 to 11 inches; dark brown loamy fine sand; strongly acid

*Subsoil:*

11 to 25 inches; yellowish brown loamy fine sand; very strongly acid

25 to 50 inches; strong brown loamy fine sand; very strongly acid

50 to 80 inches; strong brown loamy sand; very strongly acid



***GrB—Gurdon silt loam, 0 to 3 percent slopes, rarely flooded***

***Map Unit Composition***

**Major components**

Gurdon and similar soils: 85 percent

**Contrasting inclusions**

Amy soils: 5 percent

Aquults: 5 percent

Smithton soils: 5 percent

***Characteristics of the Gurdon Soil***

**Soil properties and qualities**

*MLRA:* 133B—Western Coastal Plain

*Landform:* Stream terraces

*Parent material:* Silty alluvium

*Slope:* 0 to 3 percent

*Drainage class:* Somewhat poorly drained

*Slowest saturated hydraulic conductivity:* Moderately slow (about 1.41 micrometers/sec)

*Available water capacity:* High (about 10.2 inches)

*Shrink-swell potential:* Low (about 1.5 percent linear extensibility)

*Flooding:* Rare

*Depth to seasonal water saturation:* About 12 to 24 inches

*Type of seasonal water saturation:* Apparent

*Runoff class:* Very high

*Nonirrigated land capability classification:* 2e

**Typical profile**

*Surface layer:*

0 to 3 inches; grayish brown silt loam; very strongly acid

*Subsurface layer:*

3 to 10 inches; light yellowish brown silt loam that has brownish yellow and pale brown masses of oxidized iron; very strongly acid

*Subsoil:*

10 to 21 inches; brownish yellow silt loam that has light yellowish brown masses of oxidized iron and light brownish gray iron depletions; very strongly acid

21 to 35 inches; yellowish brown silt loam that has brownish yellow masses of oxidized iron and gray iron depletions; very strongly acid

35 to 47 inches; brownish yellow silt loam that has yellowish brown masses of oxidized iron and light gray iron depletions; very strongly acid

47 to 63 inches; gray, yellowish brown, and brownish yellow silty clay loam; very strongly acid

63 to 80 inches; gray and yellowish brown silty clay loam; very strongly acid

***GyA—Guyton silt loam, 0 to 1 percent slopes, frequently flooded***

***Map Unit Composition***

**Major components**

Guyton and similar soils: 85 percent

**Contrasting inclusions**

Una soils: 5 percent

Amy soils: 5 percent  
Smithton soils: 3 percent  
Aquents: 2 percent

### ***Characteristics of the Guyton Soil***

#### **Soil properties and qualities**

*MLRA:* 133B—Western Coastal Plain

*Landform:* Flood plains

*Parent material:* Loamy alluvium

*Slope:* 0 to 1 percent

*Drainage class:* Poorly drained

*Slowest saturated hydraulic conductivity:* Slow (about 0.42 micrometers/sec)

*Available water capacity:* High (about 11.8 inches)

*Shrink-swell potential:* Low (about 1.5 percent linear extensibility)

*Flooding:* Frequent

*Depth to seasonal water saturation:* At the surface to a depth of about 12 inches

*Type of seasonal water saturation:* Apparent

*Runoff class:* High

*Nonirrigated land capability classification:* 5w

#### **Typical profile**

*Surface layer:*

0 to 5 inches; brown silt loam; strongly acid

*Subsurface layer:*

5 to 13 inches; light brownish gray silt loam that has dark yellowish brown masses of oxidized iron; very strongly acid

*Subsoil:*

13 to 26 inches; 15 percent gray silt loam that has dark yellowish brown masses of oxidized iron; very strongly acid

26 to 36 inches; gray silt loam that has yellowish brown and strong brown masses of oxidized iron; very strongly acid

36 to 60 inches; gray silt loam that has yellowish brown masses of oxidized iron; very strongly acid

*Substratum:*

60 to 80 inches; gray silty clay loam that has strong brown and yellowish brown masses of oxidized iron; strongly acid

### ***HaC—Harleston fine sandy loam, 1 to 8 percent slopes***

#### ***Map Unit Composition***

#### **Major components**

Harleston and similar soils: 80 percent

#### **Contrasting inclusions**

Aquults: 5 percent

Smithton soils: 5 percent

Warnock soils: 3 percent

Sawyer soils: 3 percent

Sacul soils: 2 percent

Angie soils: 2 percent

### ***Characteristics of the Harleston Soil***

#### **Soil properties and qualities**

*MLRA:* 133B—Western Coastal Plain

*Landform:* Hills

*Parent material:* Loamy, marine deposits

*Slope:* 1 to 8 percent

*Drainage class:* Moderately well drained

*Slowest saturated hydraulic conductivity:* Moderate (about 4.00 micrometers/sec)

*Available water capacity:* Moderate (about 8.7 inches)

*Shrink-swell potential:* Low (about 1.5 percent linear extensibility)

*Depth to seasonal water saturation:* About 24 to 36 inches

*Type of seasonal water saturation:* Apparent

*Runoff class:* Medium

*Nonirrigated land capability classification:* 3e

### **Typical profile**

*Surface layer:*

0 to 5 inches; brown fine sandy loam; strongly acid

*Subsurface layer:*

5 to 9 inches; yellowish brown fine sandy loam; very strongly acid

*Subsoil:*

9 to 24 inches; yellowish brown loam; very strongly acid

24 to 48 inches; yellowish brown loam that has reddish yellow and red masses of oxidized iron and has gray iron depletions; very strongly acid

48 to 80 inches; yellowish brown sandy clay loam that has gray iron depletions; very strongly acid

## **LVS—Levee**

This map unit consists of soils that formed from loamy or clayey materials used to construct levees along stream channels. The levees were constructed to provide protection from flooding. The soils are varied in texture and range from clay to fine sandy loam. This map unit is typically sloping to moderately steep. Level roadways are on the top of some levees. Areas of this map unit have limited use for grazing.

## **OfA—Oil-waste land-Fluvaquents complex, 0 to 1 percent slopes, frequently flooded**

### **Map Unit Composition**

#### **Major components**

Oil-waste land: 50 percent

Fluvaquents: 40 percent

#### **Contrasting inclusions**

Bibb soils: 5 percent

Guyton soils: 3 percent

Smithton soils: 2 percent

### **Characteristics of the Oil-waste land and Fluvaquents**

#### **Soil properties and qualities**

*MLRA:* 133B—Western Coastal Plain

*Landform:* Flood plains

*Parent material:* Silty and clayey alluvium

*Slope:* 0 to 1 percent

*Drainage class:* Poorly drained

*Slowest saturated hydraulic conductivity:* Not rated

*Available water capacity:* Not rated

*Shrink-swell potential:* Not rated

*Flooding:* Frequent

*Depth to seasonal water saturation:* At the surface to a depth of about 12 inches

*Type of seasonal water saturation:* Apparent

*Runoff class:* Oil-waste land—negligible; Fluvaquents—high

*Nonirrigated land capability classification:* Oil-waste land—8s; Fluvaquents—7s

Areas of Oil-waste land do not have a plant cover and are subject to erosion or scouring with each storm event. Soil characteristics cannot be determined with any degree of accuracy because of the constant scouring, re-deposition of sediment, and pollution from oil waste and salt water.

Fluvaquents are in slightly higher areas than those of the surrounding Oil-waste land and no longer receive oil waste or saltwater runoff. Most areas have begun to reclaim themselves and support sparse vegetation. Fluvaquents consist of stratified sediments of variable texture, mainly fine sandy loam, sandy loam, and silt loam. Most areas contain discontinuous, impermeable layers caused by past oil-waste contamination.

Most areas of the Fluvaquents support little or no vegetation. In those areas that do support vegetation, sparse saltwater-tolerant grasses and cattails are the main cover.

## ***RuB—Ruston fine sandy loam, 1 to 3 percent slopes***

### ***Map Unit Composition***

#### **Major components**

Ruston and similar soils: 85 percent

#### **Contrasting inclusions**

Warnock soils: 5 percent

Briley soils: 5 percent

Smithdale soils: 5 percent

### ***Characteristics of the Ruston Soil***

#### **Soil properties and qualities**

*MLRA:* 133B—Western Coastal Plain

*Landform:* Hills

*Parent material:* Loamy, marine deposits

*Slope:* 1 to 3 percent

*Drainage class:* Well drained

*Slowest saturated hydraulic conductivity:* Moderate (about 4.00 micrometers/sec)

*Available water capacity:* Moderate (about 8.5 inches)

*Shrink-swell potential:* Low (about 1.5 percent linear extensibility)

*Depth to seasonal water saturation:* More than 6 feet

*Runoff class:* Low

*Nonirrigated land capability classification:* 2e

#### **Typical profile**

*Surface layer:*

0 to 6 inches; dark grayish brown fine sandy loam; strongly acid

*Subsurface layer:*

6 to 15 inches; pale brown fine sandy loam; strongly acid

*Subsoil:*

15 to 35 inches; red sandy clay loam; very strongly acid

35 to 55 inches; 60 percent yellowish red and 40 percent light yellowish brown fine sandy loam; very strongly acid

55 to 80 inches; red sandy clay loam; very strongly acid

## ***RwC—Rosalie-Warnock complex, 1 to 8 percent slopes***

### ***Map Unit Composition***

#### **Major components**

Rosalie and similar soils: 50 percent

Warnock and similar soils: 40 percent

#### **Contrasting inclusions**

Sawyer soils: 3 percent

Sacul soils: 3 percent

Harleston soils: 2 percent

Angie soils: 2 percent

### ***Characteristics of the Rosalie Soil***

#### **Soil properties and qualities**

*MLRA:* 133B—Western Coastal Plain

*Landform:* Hills

*Parent material:* Loamy, marine deposits

*Slope:* 1 to 8 percent

*Drainage class:* Well drained

*Slowest saturated hydraulic conductivity:* Moderate (about 4.00 micrometers/sec)

*Available water capacity:* Moderate (about 7.0 inches)

*Shrink-swell potential:* Low (about 1.5 percent linear extensibility)

*Depth to seasonal water saturation:* More than 6 feet

*Runoff class:* Low

*Nonirrigated land capability classification:* 3s

#### **Typical profile**

*Surface layer:*

0 to 8 inches; brown loamy fine sand; strongly acid

*Subsurface layer:*

8 to 23 inches; pale brown loamy fine sand; strongly acid

23 to 32 inches; light yellowish brown loamy fine sand; very strongly acid

*Subsoil:*

32 to 43 inches; 90 percent yellowish brown sandy clay loam, 5 percent light yellowish brown loamy sand, and 5 percent very pale brown loamy sand having red masses of oxidized iron and light brownish gray iron depletions; very strongly acid

43 to 60 inches; brownish yellow, red, and gray sandy clay loam; very strongly acid

60 to 80 inches; gray sandy clay loam that has strong brown and red masses of oxidized iron; very strongly acid

### ***Characteristics of the Warnock Soil***

#### **Soil properties and qualities**

*MLRA:* 133B—Western Coastal Plain

*Landform:* Hills

*Parent material:* Loamy, marine deposits

*Slope:* 1 to 8 percent

*Drainage class:* Moderately well drained

*Slowest saturated hydraulic conductivity:* Moderate (about 4.00 micrometers/sec)

*Available water capacity:* Moderate (about 8.2 inches)

*Shrink-swell potential:* Low (about 1.5 percent linear extensibility)

*Depth to seasonal water saturation:* About 30 to 48 inches

*Type of seasonal water saturation:* Perched

*Runoff class:* Medium

*Nonirrigated land capability classification:* 3e

**Typical profile**

*Surface layer:*

0 to 6 inches; dark grayish brown fine sandy loam; strongly acid

*Subsurface layer:*

6 to 9 inches; brown fine sandy loam; strongly acid

*Subsoil:*

9 to 34 inches; yellowish brown sandy clay loam; very strongly acid

34 to 54 inches; yellowish brown sandy clay loam that has red masses of oxidized iron and light brownish gray iron depletions; very strongly acid

54 to 80 inches; gray, brownish yellow, and red sandy clay loam; very strongly acid

***SaC—Sacul fine sandy loam, 1 to 8 percent slopes***

***Map Unit Composition***

**Major components**

Sacul and similar soils: 80 percent

**Contrasting inclusions**

Aquults: 5 percent

Trebloc soils: 5 percent

Smithdale soils: 3 percent

Warnock soils: 3 percent

Rosalie soils: 2 percent

Harleston soils: 2 percent

***Characteristics of the Sacul Soil***

**Soil properties and qualities**

*MLRA:* 133B—Western Coastal Plain

*Landform:* Hills

*Hillslope position:* Side slopes

*Parent material:* Loamy and clayey, marine deposits

*Slope:* 1 to 8 percent

*Drainage class:* Moderately well drained

*Slowest saturated hydraulic conductivity:* Slow (about 0.42 micrometers/sec)

*Available water capacity:* High (about 9.2 inches)

*Shrink-swell potential:* High (about 7.5 percent linear extensibility)

*Depth to seasonal water saturation:* About 24 to 48 inches

*Type of seasonal water saturation:* Apparent

*Runoff class:* High

*Nonirrigated land capability classification:* 4e

**Typical profile**

*Surface layer:*

0 to 5 inches; dark grayish brown fine sandy loam; moderately acid

*Subsurface layer:*

5 to 12 inches; brown fine sandy loam; strongly acid

*Subsoil:*

12 to 23 inches; red clay; very strongly acid

23 to 31 inches; red clay that has light brownish gray iron depletions; very strongly acid

- 31 to 37 inches; red, yellowish brown, and light brownish gray clay loam; very strongly acid
- 37 to 50 inches; light brownish gray clay loam that has red and yellowish brown masses of oxidized iron; very strongly acid
- 50 to 61 inches; light brownish gray clay loam that has red masses of oxidized iron; very strongly acid

*Substratum:*

- 61 to 80 inches; light brownish gray clay loam that has red and yellowish brown masses of oxidized iron; very strongly acid

***SaD—Sacul fine sandy loam, 8 to 15 percent slopes***

***Map Unit Composition***

**Major components**

Sacul and similar soils: 90 percent

**Contrasting inclusions**

Smithdale soils: 5 percent

Sawyer soils: 5 percent

***Characteristics of the Sacul Soil***

**Soil properties and qualities**

*MLRA:* 133B—Western Coastal Plain

*Landform:* Hillslopes

*Hillslope position:* Backslopes

*Parent material:* Clayey, marine deposits

*Slope:* 8 to 15 percent

*Drainage class:* Moderately well drained

*Slowest saturated hydraulic conductivity:* Slow (about 0.42 micrometers/sec)

*Available water capacity:* High (about 9.2 inches)

*Shrink-swell potential:* High (about 7.5 percent linear extensibility)

*Depth to seasonal water saturation:* About 24 to 48 inches

*Type of seasonal water saturation:* Apparent

*Runoff class:* High

*Nonirrigated land capability classification:* 6e

**Typical profile**

*Surface layer:*

- 0 to 5 inches; dark grayish brown fine sandy loam; moderately acid

*Subsurface layer:*

- 5 to 12 inches; brown fine sandy loam; strongly acid

*Subsoil:*

- 12 to 23 inches; red clay; very strongly acid
- 23 to 31 inches; red clay that has light brownish gray iron depletions; very strongly acid
- 31 to 37 inches; red, yellowish brown, and light brownish gray clay loam; very strongly acid
- 37 to 50 inches; light brownish gray clay loam that has red and yellowish brown masses of oxidized iron; very strongly acid
- 50 to 61 inches; light brownish gray clay loam that has red masses of oxidized iron; very strongly acid

*Substratum:*

- 61 to 80 inches; light brownish gray clay loam that has red and yellowish brown masses of oxidized iron; very strongly acid



## ***SaE—Sacul fine sandy loam, 15 to 30 percent slopes***

### ***Map Unit Composition***

#### **Major components**

Sacul and similar soils: 90 percent

#### **Contrasting inclusions**

Smithdale soils: 5 percent

Sawyer soils: 5 percent

### ***Characteristics of the Sacul Soil***

#### **Soil properties and qualities**

*MLRA:* 133B—Western Coastal Plain

*Landform:* Hillslopes

*Hillslope position:* Backslopes

*Parent material:* Clayey, marine deposits

*Slope:* 15 to 30 percent

*Drainage class:* Moderately well drained

*Slowest saturated hydraulic conductivity:* Slow (about 0.42 micrometers/sec)

*Available water capacity:* High (about 9.2 inches)

*Shrink-swell potential:* High (about 7.5 percent linear extensibility)

*Depth to seasonal water saturation:* About 24 to 48 inches

*Type of seasonal water saturation:* Apparent

*Runoff class:* Very high

*Nonirrigated land capability classification:* 7e

#### **Typical profile**

*Surface layer:*

0 to 5 inches; dark grayish brown fine sandy loam; moderately acid

*Subsurface layer:*

5 to 12 inches; brown fine sandy loam; strongly acid

*Subsoil:*

12 to 23 inches; red clay; very strongly acid

23 to 31 inches; red clay that has light brownish gray iron depletions; very strongly acid

31 to 37 inches; red, yellowish brown, and light brownish gray clay loam; very strongly acid

37 to 50 inches; light brownish gray clay loam that has red and yellowish brown masses of oxidized iron; very strongly acid

50 to 61 inches; light brownish gray clay loam that has red masses of oxidized iron; very strongly acid

*Substratum:*

61 to 80 inches; light brownish gray clay loam that has red and yellowish brown masses of oxidized iron; very strongly acid

## ***ScC—Sacul-Sawyer complex, 1 to 8 percent slopes***

### ***Map Unit Composition***

#### **Major components**

Sacul and similar soils: 45 percent

Sawyer and similar soils: 35 percent

#### **Contrasting inclusions**

Aquults: 5 percent



Trebloc soils: 5 percent  
Smithdale soils: 5 percent  
Harleston soils: 3 percent  
Rosalie soils: 2 percent

### ***Characteristics of the Sacul Soil***

#### **Soil properties and qualities**

*MLRA:* 133B—Western Coastal Plain  
*Landform:* Hillslopes and coastal plains  
*Parent material:* Clayey, marine deposits  
*Slope:* 1 to 8 percent  
*Drainage class:* Moderately well drained  
*Slowest saturated hydraulic conductivity:* Slow (about 0.42 micrometers/sec)  
*Available water capacity:* High (about 9.2 inches)  
*Shrink-swell potential:* High (about 7.5 percent linear extensibility)  
*Depth to seasonal water saturation:* About 24 to 48 inches  
*Type of seasonal water saturation:* Apparent  
*Runoff class:* High  
*Nonirrigated land capability classification:* 4e

#### **Typical profile**

##### *Surface layer:*

0 to 5 inches; dark grayish brown fine sandy loam; moderately acid

##### *Subsurface layer:*

5 to 12 inches; brown fine sandy loam; strongly acid

##### *Subsoil:*

12 to 23 inches; red clay; very strongly acid

23 to 31 inches; red clay that has light brownish gray iron depletions; very strongly acid

31 to 37 inches; red, yellowish brown, and light brownish gray clay loam; very strongly acid

37 to 50 inches; light brownish gray clay loam that has red and yellowish brown masses of oxidized iron; very strongly acid

50 to 61 inches; light brownish gray clay loam that has red masses of oxidized iron; very strongly acid

##### *Substratum:*

61 to 80 inches; light brownish gray clay loam that has red and yellowish brown masses of oxidized iron; very strongly acid

### ***Characteristics of the Sawyer Soil***

#### **Soil properties and qualities**

*MLRA:* 133B—Western Coastal Plain  
*Landform:* Hillslopes  
*Parent material:* Loamy and clayey, marine deposits  
*Slope:* 1 to 8 percent  
*Drainage class:* Moderately well drained  
*Slowest saturated hydraulic conductivity:* Slow (about 0.42 micrometers/sec)  
*Available water capacity:* High (about 10.5 inches)  
*Shrink-swell potential:* High (about 7.5 percent linear extensibility)  
*Depth to seasonal water saturation:* About 18 to 30 inches  
*Type of seasonal water saturation:* Perched  
*Runoff class:* Medium  
*Nonirrigated land capability classification:* 3e

**Typical profile**

*Surface layer:*

0 to 8 inches; dark grayish brown very fine sandy loam; strongly acid

*Subsurface layer:*

8 to 13 inches; light yellowish brown fine sandy loam; very strongly acid

*Subsoil:*

13 to 23 inches; yellowish brown silty clay loam; very strongly acid

23 to 31 inches; yellowish brown silty clay loam that has strong brown and yellowish red masses of oxidized iron and gray iron depletions; very strongly acid

31 to 38 inches; yellowish brown silty clay that has dark red and strong brown masses of oxidized iron and gray iron depletions; very strongly acid

38 to 56 inches; gray, strong brown, yellowish brown, and red silty clay; very strongly acid

56 to 66 inches; gray, strong brown, and yellowish brown silty clay; very strongly acid

66 to 80 inches; light brownish gray silty clay that has yellowish brown masses of oxidized iron; extremely acid

***ScD—Sacul-Sawyer complex, 8 to 15 percent slopes***

***Map Unit Composition***

**Major components**

Sacul and similar soils: 50 percent

Sawyer and similar soils: 40 percent

**Contrasting inclusions**

Smithdale soils: 10 percent

***Characteristics of the Sacul Soil***

**Soil properties and qualities**

*MLRA:* 133B—Western Coastal Plain

*Landform:* Coastal plains and hillslopes

*Hillslope position:* Shoulders and footslopes

*Parent material:* Clayey, marine deposits

*Slope:* 8 to 15 percent

*Drainage class:* Moderately well drained

*Slowest saturated hydraulic conductivity:* Slow (about 0.42 micrometers/sec)

*Available water capacity:* High (about 9.2 inches)

*Shrink-swell potential:* High (about 7.5 percent linear extensibility)

*Depth to seasonal water saturation:* About 24 to 48 inches

*Type of seasonal water saturation:* Apparent

*Runoff class:* High

*Nonirrigated land capability classification:* 6e

**Typical profile**

*Surface layer:*

0 to 5 inches; dark grayish brown fine sandy loam; moderately acid

*Subsurface layer:*

5 to 12 inches; brown fine sandy loam; strongly acid

*Subsoil:*

12 to 23 inches; red clay; very strongly acid

23 to 31 inches; red clay that has light brownish gray iron depletions; very strongly acid

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- 31 to 37 inches; red, yellowish brown, and light brownish gray clay loam; very strongly acid
- 37 to 50 inches; light brownish gray clay loam that has red and yellowish brown masses of oxidized iron; very strongly acid
- 50 to 61 inches; light brownish gray clay loam that has red masses of oxidized iron; very strongly acid

### *Substratum:*

- 61 to 80 inches; light brownish gray clay loam that has red and yellowish brown masses of oxidized iron; very strongly acid

### ***Characteristics of the Sawyer Soil***

#### **Soil properties and qualities**

*MLRA:* 133B—Western Coastal Plain

*Landform:* Hillslopes

*Parent material:* Loamy and clayey, marine deposits

*Slope:* 8 to 15 percent

*Drainage class:* Moderately well drained

*Slowest saturated hydraulic conductivity:* Slow (about 0.42 micrometers/sec)

*Available water capacity:* High (about 10.5 inches)

*Shrink-swell potential:* High (about 7.5 percent linear extensibility)

*Depth to seasonal water saturation:* About 18 to 30 inches

*Type of seasonal water saturation:* Perched

*Runoff class:* Medium

*Nonirrigated land capability classification:* 4e

#### **Typical profile**

##### *Surface layer:*

- 0 to 8 inches; dark grayish brown very fine sandy loam; strongly acid

##### *Subsurface layer:*

- 8 to 13 inches; light yellowish brown fine sandy loam; very strongly acid

##### *Subsoil:*

- 13 to 23 inches; yellowish brown silty clay loam; very strongly acid
- 23 to 31 inches; yellowish brown silty clay loam that has strong brown and yellowish red masses of oxidized iron and has gray iron depletions; very strongly acid
- 31 to 38 inches; yellowish brown silty clay that has dark red and strong brown masses of oxidized iron and has gray iron depletions; very strongly acid
- 38 to 56 inches; gray, strong brown, yellowish brown, and red silty clay; very strongly acid
- 56 to 66 inches; gray, strong brown, and yellowish brown silty clay; very strongly acid
- 66 to 80 inches; light brownish gray silty clay that has yellowish brown masses of oxidized iron; extremely acid

### ***SeC—Sawyer very fine sandy loam, 1 to 8 percent slopes***

#### ***Map Unit Composition***

##### **Major components**

Sawyer and similar soils: 85 percent

##### **Contrasting inclusions**

Trebloc soils: 5 percent

Aquults: 3 percent

### ***Characteristics of the Sawyer Soil***

#### **Soil properties and qualities**

*MLRA:* 133B—Western Coastal Plain

*Landform:* Hills

*Parent material:* Loamy and clayey, marine deposits

*Slope:* 1 to 8 percent

*Drainage class:* Moderately well drained

*Slowest saturated hydraulic conductivity:* Slow (about 0.42 micrometers/sec)

*Available water capacity:* High (about 10.5 inches)

*Shrink-swell potential:* High (about 7.5 percent linear extensibility)

*Depth to seasonal water saturation:* About 18 to 30 inches

*Type of seasonal water saturation:* Perched

*Runoff class:* Medium

*Nonirrigated land capability classification:* 3e (fig. 3)

#### **Typical profile**

*Surface layer:*

0 to 8 inches; dark grayish brown very fine sandy loam; strongly acid

*Subsurface layer:*

8 to 13 inches; light yellowish brown fine sandy loam; very strongly acid

*Subsoil:*

13 to 23 inches; yellowish brown silty clay loam; very strongly acid

23 to 31 inches; yellowish brown silty clay loam that has strong brown and yellowish red masses of oxidized iron and has gray iron depletions; very strongly acid



**Figure 3.—An area of Sawyer very fine sandy loam, 1 to 8 percent slopes, on which good pasture management provides abundant grass.**

- 31 to 38 inches; yellowish brown silty clay that has dark red and strong brown masses of oxidized iron and has gray iron depletions; very strongly acid
- 38 to 56 inches; gray, strong brown, yellowish brown, and red silty clay; very strongly acid
- 56 to 66 inches; gray, strong brown, and yellowish brown silty clay; very strongly acid
- 66 to 80 inches; light brownish gray silty clay that has yellowish brown masses of oxidized iron; extremely acid

### ***SmC—Smithdale fine sandy loam, 3 to 8 percent slopes***

#### ***Map Unit Composition***

##### **Major components**

Smithdale and similar soils: 90 percent

##### **Contrasting inclusions**

Sacul soils: 5 percent

Sawyer soils: 5 percent

#### ***Characteristics of the Smithdale Soil***

##### **Soil properties and qualities**

*MLRA:* 133B—Western Coastal Plain

*Landform:* Hills

*Parent material:* Loamy, marine deposits

*Slope:* 3 to 8 percent

*Drainage class:* Well drained

*Slowest saturated hydraulic conductivity:* Moderate (about 4.00 micrometers/sec)

*Available water capacity:* High (about 9.2 inches)

*Shrink-swell potential:* Low (about 1.5 percent linear extensibility)

*Depth to seasonal water saturation:* More than 6 feet

*Runoff class:* Medium

*Nonirrigated land capability classification:* 3e

##### **Typical profile**

*Surface layer:*

0 to 6 inches; brown fine sandy loam; strongly acid

*Subsoil:*

6 to 10 inches; yellowish red fine sandy loam; strongly acid

10 to 36 inches; red sandy clay loam; strongly acid

36 to 50 inches; red sandy loam; strongly acid

50 to 80 inches; red sandy loam; strongly acid

### ***SmD—Smithdale fine sandy loam, 8 to 15 percent slopes***

#### ***Map Unit Composition***

##### **Major components**

Smithdale and similar soils: 90 percent

##### **Contrasting inclusions**

Sacul soils: 5 percent

Darden soils: 5 percent

#### ***Characteristics of the Smithdale Soil***

##### **Soil properties and qualities**

*MLRA:* 133B—Western Coastal Plain

*Landform:* Hillslopes

*Parent material:* Loamy, marine deposits

*Slope:* 8 to 15 percent

*Drainage class:* Well drained

*Slowest saturated hydraulic conductivity:* Moderate (about 4.00 micrometers/sec)

*Available water capacity:* High (about 9.2 inches)

*Shrink-swell potential:* Low (about 1.5 percent linear extensibility)

*Depth to seasonal water saturation:* More than 6 feet

*Runoff class:* Medium

*Nonirrigated land capability classification:* 4e

**Typical profile**

*Surface layer:*

0 to 6 inches; brown fine sandy loam; strongly acid

*Subsoil:*

6 to 10 inches; yellowish red fine sandy loam; strongly acid

10 to 36 inches; red sandy clay loam; strongly acid

36 to 50 inches; red sandy loam; strongly acid

50 to 80 inches; red sandy loam; strongly acid

***SmE—Smithdale fine sandy loam, 15 to 30 percent slopes***

***Map Unit Composition***

**Major components**

Smithdale and similar soils: 90 percent

**Contrasting inclusions**

Sacul soils: 5 percent

Darden soils: 5 percent

***Characteristics of the Smithdale Soil***

**Soil properties and qualities**

*MLRA:* 133B—Western Coastal Plain

*Landform:* Hillslopes

*Parent material:* Loamy, marine deposits

*Slope:* 15 to 30 percent

*Drainage class:* Well drained

*Slowest saturated hydraulic conductivity:* Moderate (about 4.00 micrometers/sec)

*Available water capacity:* High (about 9.2 inches)

*Shrink-swell potential:* Low (about 1.5 percent linear extensibility)

*Depth to seasonal water saturation:* More than 6 feet

*Runoff class:* High

*Nonirrigated land capability classification:* 6e

**Typical profile**

*Surface layer:*

0 to 6 inches; brown fine sandy loam; strongly acid

*Subsoil:*

6 to 10 inches; yellowish red fine sandy loam; strongly acid

10 to 36 inches; red sandy clay loam; strongly acid

36 to 50 inches; red sandy loam; strongly acid

50 to 80 inches; red sandy loam; strongly acid



## ***StB—Smithton fine sandy loam, 0 to 2 percent slopes***

### ***Map Unit Composition***

#### **Major components**

Smithton and similar soils: 85 percent

#### **Contrasting inclusions**

Guyton soils: 5 percent

Aquults: 5 percent

Harleston soils: 3 percent

Fluvaquents: 2 percent

### ***Characteristics of the Smithton Soil***

#### **Soil properties and qualities**

*MLRA:* 133B—Western Coastal Plain

*Landform:* Stream terraces

*Parent material:* Loamy, marine deposits

*Slope:* 0 to 2 percent

*Drainage class:* Poorly drained

*Slowest saturated hydraulic conductivity:* Moderately slow (about 1.40 micrometers/sec)

*Available water capacity:* High (about 9.3 inches)

*Shrink-swell potential:* Low (about 1.5 percent linear extensibility)

*Depth to seasonal water saturation:* At the surface to a depth of about 12 inches

*Type of seasonal water saturation:* Apparent

*Runoff class:* Very high

*Nonirrigated land capability classification:* 3w

#### **Typical profile**

*Surface layer:*

0 to 6 inches; grayish brown fine sandy loam; strongly acid

*Subsurface layer:*

6 to 19 inches; light brownish gray fine sandy loam that has yellowish brown masses of oxidized iron; very strongly acid

*Subsoil:*

19 to 31 inches; gray fine sandy loam that has yellowish brown masses of oxidized iron; very strongly acid

31 to 80 inches; gray loam that has strong brown and yellowish brown masses of oxidized iron; very strongly acid

## ***TrB—Trebloc silt loam, 0 to 2 percent slopes***

### ***Map Unit Composition***

#### **Major components**

Trebloc and similar soils: 90 percent

#### **Contrasting inclusions**

Sawyer soils: 5 percent

Aquults: 3 percent

Sacul soils: 2 percent

### ***Characteristics of the Trebloc Soil***

#### **Soil properties and qualities**

*MLRA:* 133B—Western Coastal Plain

*Landform:* Depressions

*Parent material:* Loamy and clayey, marine deposits

*Slope:* 0 to 2 percent

*Drainage class:* Poorly drained

*Slowest saturated hydraulic conductivity:* Slow (about 0.42 micrometers/sec)

*Available water capacity:* High (about 10.3 inches)

*Shrink-swell potential:* Moderate (about 4.5 percent linear extensibility)

*Depth to seasonal water saturation:* About 6 to 12 inches

*Type of seasonal water saturation:* Apparent

*Runoff class:* Very high

*Nonirrigated land capability classification:* 3w

### **Typical profile**

*Surface layer:*

0 to 3 inches; grayish brown silt loam; very strongly acid

*Subsurface layer:*

3 to 9 inches; light brownish gray silt loam that has yellowish brown masses of oxidized iron; strongly acid

*Subsoil:*

9 to 25 inches; light brownish gray silt loam that has strong brown masses of oxidized iron; very strongly acid

25 to 34 inches; light brownish gray silty clay loam that has yellowish brown and strong brown masses of oxidized iron; very strongly acid

34 to 61 inches; gray silty clay that has strong brown masses of oxidized iron; very strongly acid

61 to 80 inches; light brownish gray silty clay loam that has brownish yellow masses of oxidized iron; very strongly acid

## ***UnA—Una silty clay loam, 0 to 1 percent slopes, frequently flooded***

### ***Map Unit Composition***

#### **Major components**

Una and similar soils: 85 percent

#### **Contrasting inclusions**

Amy soils: 5 percent

Guyton soils: 5 percent

Aquents: 5 percent

### ***Characteristics of the Una Soil***

#### **Soil properties and qualities**

*MLRA:* 133B—Western Coastal Plain

*Landform:* Flood plains

*Parent material:* Clayey alluvium

*Slope:* 0 to 1 percent

*Drainage class:* Poorly drained

*Slowest saturated hydraulic conductivity:* Very slow (about 0.01 micrometers/sec)

*Available water capacity:* High (about 10.8 inches)

*Shrink-swell potential:* High (about 7.5 percent linear extensibility)

*Flooding:* Frequent

*Depth to seasonal water saturation:* About 6 to 12 inches

*Type of seasonal water saturation:* Apparent

*Runoff class:* High

*Nonirrigated land capability classification:* 5w



**Typical profile**

*Surface layer:*

0 to 7 inches; dark grayish brown silty clay loam that has strong brown masses of oxidized iron; very strongly acid

*Subsoil:*

7 to 14 inches; light brownish gray silty clay that has strong brown and reddish yellow masses of oxidized iron; very strongly acid

14 to 30 inches; light brownish gray silty clay that has strong brown and reddish yellow masses of oxidized iron; very strongly acid

30 to 44 inches; light brownish gray clay that has strong brown and reddish yellow masses of oxidized iron; very strongly acid

44 to 57 inches; light brownish gray silty clay that has strong brown masses of oxidized iron; very strongly acid

57 to 80 inches; light brownish gray silty clay that has strong brown masses of oxidized iron; very strongly acid

***UpA—Una silty clay loam, 0 to 1 percent slopes, ponded***

***Map Unit Composition***

**Major components**

Una and similar soils: 85 percent

**Contrasting inclusions**

Amy soils: 5 percent

Guyton soils: 5 percent

Aquents: 5 percent

***Characteristics of the Una Soil***

**Soil properties and qualities**

*MLRA:* 133B—Western Coastal Plain

*Landform:* Depressions on flood plains

*Parent material:* Clayey alluvium

*Slope:* 0 to 1 percent

*Drainage class:* Poorly drained

*Slowest saturated hydraulic conductivity:* Very slow (about 0.01 micrometers/sec)

*Available water capacity:* High (about 10.8 inches)

*Shrink-swell potential:* High (about 7.5 percent linear extensibility)

*Flooding:* Frequent

*Ponding:* Frequent

*Depth to seasonal water saturation:* At the surface to a depth of about 12 inches

*Type of seasonal water saturation:* Apparent

*Runoff class:* Negligible

*Nonirrigated land capability classification:* 6w

**Typical profile**

*Surface layer:*

0 to 7 inches; dark grayish brown silty clay loam that has strong brown masses of oxidized iron; very strongly acid

*Subsoil:*

7 to 14 inches; light brownish gray silty clay that has strong brown and reddish yellow masses of oxidized iron; very strongly acid

14 to 30 inches; light brownish gray silty clay that has strong brown and reddish yellow masses of oxidized iron; very strongly acid

30 to 44 inches; light brownish gray clay that has strong brown and reddish yellow masses of oxidized iron; very strongly acid

44 to 57 inches; light brownish gray silty clay that has strong brown masses of oxidized iron; very strongly acid  
57 to 80 inches; light brownish gray silty clay that has strong brown masses of oxidized iron; very strongly acid

### ***WaC—Warnock fine sandy loam, 1 to 7 percent slopes***

#### ***Map Unit Composition***

##### **Major components**

Warnock and similar soils: 85 percent

##### **Contrasting inclusions**

Sacul soils: 5 percent

Sawyer soils: 5 percent

Angie soils: 3 percent

Ruston soils: 2 percent

#### ***Characteristics of the Warnock Soil***

##### **Soil properties and qualities**

*MLRA:* 133B—Western Coastal Plain

*Landform:* Hills

*Parent material:* Loamy, marine deposits

*Slope:* 1 to 7 percent

*Drainage class:* Moderately well drained

*Slowest saturated hydraulic conductivity:* Moderate (about 4.00 micrometers/sec)

*Available water capacity:* Moderate (about 8.2 inches)

*Shrink-swell potential:* Low (about 1.5 percent linear extensibility)

*Depth to seasonal water saturation:* About 30 to 48 inches

*Type of seasonal water saturation:* Perched

*Runoff class:* Low

*Nonirrigated land capability classification:* 3e

##### **Typical profile**

*Surface layer:*

0 to 6 inches; dark grayish brown fine sandy loam; strongly acid

*Subsurface layer:*

6 to 9 inches; brown fine sandy loam; strongly acid

*Subsoil:*

9 to 34 inches; yellowish brown sandy clay loam; very strongly acid

34 to 54 inches; yellowish brown sandy clay loam that has red masses of oxidized iron and light brownish gray iron depletions; very strongly acid

54 to 80 inches; gray, brownish yellow, and red sandy clay loam; very strongly acid

### ***WsC—Warnock-Smithdale complex, 1 to 7 percent slopes***

#### ***Map Unit Composition***

##### **Major components**

Warnock and similar soils: 45 percent

Smithdale and similar soils: 40 percent

##### **Contrasting inclusions**

Rosalie soils: 5 percent

Sacul soils: 5 percent

Angie soils: 5 percent

### ***Characteristics of the Warnock Soil***

#### **Soil properties and qualities**

*MLRA:* 133B—Western Coastal Plain

*Landform:* Hills

*Parent material:* Loamy, marine deposits

*Slope:* 1 to 7 percent

*Drainage class:* Moderately well drained

*Slowest saturated hydraulic conductivity:* Moderate (about 4.00 micrometers/sec)

*Available water capacity:* Moderate (about 8.2 inches)

*Shrink-swell potential:* Low (about 1.5 percent linear extensibility)

*Depth to seasonal water saturation:* About 30 to 48 inches

*Type of seasonal water saturation:* Perched

*Runoff class:* Low

*Nonirrigated land capability classification:* 3e

#### **Typical profile**

*Surface layer:*

0 to 6 inches; dark grayish brown fine sandy loam; strongly acid

*Subsurface layer:*

6 to 9 inches; brown fine sandy loam; strongly acid

*Subsoil:*

9 to 34 inches; yellowish brown sandy clay loam; very strongly acid

34 to 54 inches; yellowish brown sandy clay loam that has red masses of oxidized iron and light brownish gray iron depletions; very strongly acid

54 to 80 inches; gray, brownish yellow, and red sandy clay loam; very strongly acid

### ***Characteristics of the Smithdale Soil***

#### **Soil properties and qualities**

*MLRA:* 133B—Western Coastal Plain

*Landform:* Hills

*Parent material:* Loamy, marine deposits

*Slope:* 1 to 7 percent

*Drainage class:* Well drained

*Slowest saturated hydraulic conductivity:* Moderate (about 4.00 micrometers/sec)

*Available water capacity:* High (about 9.2 inches)

*Shrink-swell potential:* Low (about 1.5 percent linear extensibility)

*Depth to seasonal water saturation:* More than 6 feet

*Runoff class:* Low

*Nonirrigated land capability classification:* 3e

#### **Typical profile**

*Surface layer:*

0 to 6 inches; brown fine sandy loam; strongly acid

*Subsoil:*

6 to 10 inches; yellowish red fine sandy loam; strongly acid

10 to 36 inches; red sandy clay loam; strongly acid

36 to 50 inches; red sandy loam; strongly acid

50 to 80 inches; sandy loam; strongly acid



# Prime Farmland

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Prime farmland is one of several kinds of important farmland defined by the U.S. Department of Agriculture. It is of major importance in meeting the Nation's short- and long-range needs for food and fiber. Because the supply of high-quality farmland is limited, the U.S. Department of Agriculture recognizes that responsible levels of government, as well as individuals, should encourage and facilitate the wise use of our Nation's prime farmland.

Prime farmland, as defined by the U.S. Department of Agriculture, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land, pastureland, forestland, or other land, but it is not urban or built-up land or water areas. The soil qualities, growing season, and moisture supply are those needed for the soil to economically produce sustained high yields of crops when proper management, including water management, and acceptable farming methods are applied. In general, prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, an acceptable salt and sodium content, and few or no rocks. It is permeable to water and air. It is not excessively erodible or saturated with water for long periods, and it either is not frequently flooded during the growing season or is protected from flooding. Slope ranges mainly from 0 to 7 percent. More detailed information about the criteria for prime farmland is available at the local office of the Natural Resources Conservation Service.

About 100,454 acres in the survey area, or about 15 percent of the total acreage, meets the soil requirements for prime farmland. Another 50,468 acres, or nearly 7 percent of the survey area, would meet the requirements for prime farmland if drainage measures were installed. Areas of prime farmland are scattered throughout the survey area. No areas of prime farmland are used for crops in the county.

A recent trend in land use in some parts of the survey area has been the loss of some prime farmland to industrial and urban uses. The loss of prime farmland to other uses puts pressure on marginal lands, which generally are more erodible, droughty, and less productive and cannot be easily cultivated.

The following map units are considered prime farmland in Union County. This list does not constitute a recommendation for a particular land use. On some soils included in the list, measures that overcome a hazard or limitation, such as flooding, wetness, and droughtiness, are needed. Onsite evaluation is needed to determine whether or not the hazard or limitation has been overcome by corrective measures. The extent of each listed map unit is shown in Table 4. The location is shown on the detailed soil maps. The soil qualities that affect use and management are described under the heading "Detailed Soil Map Units."

The soils identified as prime farmland in Union County are:

AaA	Amy silt loam, 0 to 1 percent slopes, rarely flooded (where drained)
AgB	Amy-Gurdon complex, 0 to 3 percent slopes, rarely flooded (where drained)
GrB	Gurdon silt loam, 0 to 3 percent slopes, rarely flooded
HaC	Harleston fine sandy loam, 1 to 8 percent slopes

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RuB	Ruston fine sandy loam, 1 to 3 percent slopes
StB	Smithton fine sandy loam, 0 to 2 percent slopes (where drained)
TrB	Trebloc silt loam, 0 to 2 percent slopes (where drained)
WaC	Warnock fine sandy loam, 1 to 7 percent slopes
WsC	Warnock-Smithdale complex, 1 to 7 percent slopes

# Use and Management of the Soils

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This soil survey is an inventory and evaluation of the soils in the survey area. It can be used to adjust land uses to the limitations and potentials of natural resources and the environment. Also, it can help to prevent soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavioral characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis for predicting soil behavior.

Information in this section can be used to plan the use and management of soils for crops and pasture; as rangeland and woodland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreational facilities; and for wildlife habitat. It can be used to identify the potentials and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment in all or part of the survey area. The survey can help planners to maintain or create a land use pattern that is in harmony with nature.

Contractors can use this survey to locate sources of sand and gravel, roadfill, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

Health officials, highway officials, engineers, and others may also find this survey useful. The survey can help them plan the safe disposal of wastes and locate sites for pavements, sidewalks, campgrounds, playgrounds, lawns, and trees and shrubs.

## Interpretive Ratings

The interpretive tables in this survey rate the soils in the survey area for various uses. Many of the tables identify the limitations that affect specified uses and indicate the severity of those limitations. The ratings in these tables are both verbal and numerical.

## Rating Class Terms

Rating classes are expressed in the tables in terms that indicate the extent to which the soils are limited or not limited by all of the soil features that affect a specified use. Terms for the limitation classes are *not limited*, *slightly limited*, *moderately limited*, *limited*, and *very limited*. In certain tables, the soils are rated as *improbable*, *possible*, or *probable* sources of specific materials used for construction materials.

## Numerical Ratings

Numerical ratings in the tables indicate the severity of individual limitations. They also indicate the overall degree to which a soil is limited or not limited for a specific use. The numerical ratings are shown as decimal fractions ranging from 0.00 to 1.00. Limitation classes are assigned as follows:

Not limited .....	0.00
Slightly limited .....	0.01 to 0.30
Moderately limited .....	0.31 to 0.60
Limited .....	0.61 to 0.99
Very limited .....	1.00

The numerical ratings used to express the severity of individual limitations indicate gradations between the point at which a soil feature has the greatest negative impact on the use and the point at which the soil feature is not a limitation.

In tables that use limitation class terms, such as *very limited* or *limited*, the limitation class terms and numerical ratings are shown for each limiting soil feature listed. As many as three soil features may be listed for each map unit component. The overall limitation rating for the component is based on the most severe limitation.

## Crops and Pasture

General management needed for crops and pasture is suggested in this section. The crops or pasture plants best suited to the soils, including some not commonly grown in the survey area, are identified; the system of land capability classification used by the Natural Resources Conservation Service is explained; and the estimated yields of the main crops and hay and pasture plants are listed for each soil.

Planners of management systems for individual fields or farms should consider the detailed information given in the description of each soil under the heading "Detailed Soil Map Units." Specific information can be obtained from the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

In 2002, only about 22,000 acres in Union County was used as cropland or hayland. Of this total, only about 6,000 acres was harvested cropland, mostly hay crops (USDC, 2004). The total acreage of pastureland, including grazed woodland, was only about 16,000 acres. The acreage used for crops and pasture has gradually decreased over the past 30 years. Most of the acreage that is no longer used for crops or pasture was converted to woodland.

Most of the cleared land in the county is used for pasture or hay crops (fig. 4). The acreage of row crops is extremely small. The soils that are well suited to row crops are mainly on terraces along the Ouachita River and smaller streams. Also, a few small, nearly level areas are on uplands. Suitable crops include corn, soybeans, grain sorghum, and small grains. Some gently sloping areas on uplands are well suited, suited, or moderately suited to drilled or sown crops, mainly wheat, grain sorghum, and oats. Most of the soils in the county are poorly suited, very poorly suited, or unsuited to intensive use as cropland because of slope, wetness, or flooding.

Contour farming, grassed waterways, and terraces are needed on the more sloping soils that are used for cultivated crops. Where the hazard of erosion is severe or very severe, annual cover crops should be grown regularly in the cropping system. High-residue crops, cover crops, and proper management of residue help to maintain tilth. Shredding crop residue and spreading it evenly on the surface can help to control erosion and add organic matter to the soil. Conservation tillage is needed in areas where the hazard of erosion is slight to moderate, and no-till farming is needed where the hazard is severe.





**Figure 4.—An area of Warnock fine sandy loam, 1 to 7 percent slopes. This soil can be used as pasture, hayland, or forestland.**

In general, the soils of the county have a low content of nitrogen, potassium, phosphorous, calcium, and organic matter. The kind and amount of fertilizer applied should be based on soil tests, the kind of crop to be grown, and expected yields. The application of lime improves production on most soils. Lime is generally needed for the satisfactory production of alfalfa, vegetables, and other specialty crops.

Many of the soils in the county are well suited to improved pasture. Perennial grasses or legumes or a mixture of both are grown for pasture and hay. The mixtures generally consist of a suitable legume and either a warm-season perennial grass or a cool-season perennial grass.

Coastal bermudagrass, common bermudagrass, and Pensacola bahiagrass are the most common warm-season perennials. These grasses are propagated by sprigging, generally in the spring. Coastal bermudagrass and Pensacola bahiagrass produce good quality forage. Tall fescue is the chief cool-season perennial grass grown in the survey area. It is propagated by seeding, generally in the fall. It grows well, however, only on soils that have favorable soil moisture. All the specified grasses respond well to fertilizer, particularly nitrogen. White clover, crimson clover, and annual lespedeza are the most commonly grown legumes. Mixtures of grasses and legumes may require phosphorous, potash, and lime. The amount applied should be based on soil tests.

Proper grazing management is essential to the production of high quality forage, to ensure stand survival, and to help control erosion. Grazing helps to maintain sufficient and generally vigorous top growth during the growing season. Good management includes the restriction of grazing tall fescue in the hot, dry summer. Brush and weed control are generally needed. Rotation grazing and the application of fertilizer are also needed.

A small acreage in the county is used for commercial specialty crops, home orchards, and gardens. Although most of this acreage produces little income, the enterprises are important. Most farm families and many urban families either freeze or can homegrown fruits and vegetables for personal use.

### **Yields per Acre**

The average yields per acre that can be expected of the principal crops under a high level of management are shown in table 5. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors. The land capability classification of each map unit is also shown in the table.

The yields are based mainly on the experience and records of farmers, conservationists, and extension agents. Available yield data from nearby counties and results of field trials and demonstrations also are considered.

The management needed to obtain the indicated yields of the various crops depends on the kind of soil and the crop. Management can include drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate and timely tillage; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residue, barnyard manure, and green manure crops; and harvesting that ensures the smallest possible loss.

The estimated yields reflect the productive capacity of each soil for each of the principal crops. Yields are likely to increase as new production technology is developed. The productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in the table are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local office of the Natural Resources Conservation Service or of the Cooperative Extension Service can provide information about the management and productivity of the soils for those crops.

### **Land Capability Classification**

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops (USDA–SCS, 1961). Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for rangeland, for forestland, or for engineering purposes.

In the capability system, soils are generally grouped at three levels—capability class, subclass, and unit.

*Capability classes*, the broadest groups, are designated by the numbers 1 through 8. The numbers indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class 1 soils have slight limitations that restrict their use.

Class 2 soils have moderate limitations that restrict the choice of plants or that require moderate conservation practices.

Class 3 soils have severe limitations that restrict the choice of plants or that require special conservation practices, or both.

Class 4 soils have very severe limitations that restrict the choice of plants or that require very careful management, or both.

Class 5 soils are subject to little or no erosion but have other limitations, impractical to remove, that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 6 soils have severe limitations that make them generally unsuitable for cultivation and that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 7 soils have very severe limitations that make them unsuitable for cultivation and that restrict their use mainly to grazing, forestland, or wildlife habitat.

Class 8 soils and miscellaneous areas have limitations that preclude commercial plant production and that restrict their use to recreational purposes, wildlife habitat, watershed, or esthetic purposes.

*Capability subclasses* are soil groups within one class. They are designated by adding a small letter, *e*, *w*, *s*, or *c*, to the class numeral, for example, 2*e*. The letter *e* shows that the main hazard is the risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c*, used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

In class 1 there are no subclasses because the soils of this class have few limitations. Class 5 contains only the subclasses indicated by *w*, *s*, or *c* because the soils in class 5 are subject to little or no erosion. They have other limitations that restrict their use to pasture, rangeland, forestland, wildlife habitat, or recreation.

The capability classification of map units in this survey area is given in the section "Detailed Soil Map Units" and in the yields table.

## Forestland Productivity and Management

Kelly M. Koonce, forester, Natural Resources Conservation Service, helped prepare this section.

About 87 percent of Union County is forestland. A survey conducted in 1988 by the U.S. Forest Service (USDA–FS, 1988) indicated that the forestland in the county had the following ownership: Federal 37,000 acres, county/municipal 5,000 acres, forest industry 199,000 acres, farmers 54,000 acres, corporations 59,000 acres, and individuals 231,000 acres.

The survey indicated the following forest timber types in the county: planted loblolly-shortleaf pine (64,000 acres), natural loblolly-shortleaf pine (145,000 acres), oak-pine (145,000 acres), oak-hickory (123,000 acres), and oak-gum-cypress (108,000 acres). The main tree species are loblolly pine, shortleaf pine, red oak, white oak, post oak, sweetgum, cherrybark red oak, water oak, willow oak, and various hickories.

The timber types were also categorized by stand-size class: saw timber (338,000 acres), pole timber (91,000 acres), seedling/sapling (145,000 acres), and nonstocked (11,000 acres).

Union County has 13 wood-using industries. They manufacture laminated products, finished lumber, crossties, pallets, posts, firewood, containers, plywood, and rough timber.

Union County has the largest acreage of forestland of any county in Arkansas and is one of the best counties in the state for growing forest products. The site index, which is an indicator of how high a tree grows in 50 years on a particular soil, averages about 94 feet for loblolly pine.

Tables 6, 7a, and 7b can help forest owners and managers plan the use of soils for wood crops. Potential productivity of the soils for wood crops is provided in table 6. Interpretive ratings are provided for various aspects of forest management in tables 7a and 7b.

## Forestland Productivity

In table 6, the *potential productivity* of merchantable or *common trees* on a soil is expressed as a site index and as a volume number. The *site index* is the average height, in feet, that dominant and co-dominant trees of a given species attain in a specified number of years. The site index applies to fully stocked, even-aged, unmanaged stands. Commonly grown trees are those that forest managers generally favor in intermediate or improvement cuttings. They are selected on the basis of growth rate, quality, value, and marketability. More detailed information regarding site index is available in the "National Forestry Manual," which is available in local offices of the Natural Resources Conservation Service or on the Internet.

The *volume of wood fiber*, a number, is the yield likely to be produced by the most important trees. This number, expressed as cubic feet per acre per year and calculated at the age of culmination of the mean annual increment (CMAI), indicates the amount of fiber produced in a fully stocked, even-aged, unmanaged stand.

*Trees to manage* are those that are preferred for planting, seeding, or natural regeneration and those that remain in the stand after thinning or partial harvest.

## Forestland Management

In tables 7a and 7b, interpretive ratings are given for various aspects of forest management. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the specified aspect of forest management. *Not limited* indicates that the soil has features that are very favorable for the specified aspect of management. Good performance and very low maintenance can be expected. *Slightly limited* indicates that the soil has features that are favorable for the specified aspect of management. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. *Moderately limited* indicates that the soil has features that are moderately favorable for the specified aspect of management. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Limited* indicates that the soil has one or more features that are significant limitations for the specified aspect of management. The limitations can be overcome, but overcoming them generally requires special design, special planning, soil reclamation, specialized equipment, or other procedures that may result in additional expense. Fair performance and moderate or high maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified aspect of management. The limitations generally cannot be overcome without major soil reclamation, special design, specialized equipment, or other expensive procedures. Poor performance, unsafe conditions, or high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The numerical ratings are shown as decimal fractions ranging from 0.00 to 1.00. Limitation classes are assigned as follows:

Not limited .....	0.00
Slightly limited .....	0.01 to 0.30
Moderately limited .....	0.31 to 0.60
Limited .....	0.61 to 0.99
Very limited .....	1.00

The numerical ratings used to express the severity of individual limitations indicate gradations between the point at which a soil feature has the greatest negative impact on the use and the point at which the soil feature is not a limitation.

Limitation class terms and numerical ratings are shown for each limiting soil



feature listed. As many as three soil features may be listed for each component. The overall limitation class for the component is based on the most severe limitation.

The paragraphs that follow indicate the soil properties considered in rating the soils for forest management factors. More detailed information about the criteria used in the ratings is available in the “National Forestry Manual,” which is available in local offices of the Natural Resources Conservation Service or on the Internet.

Ratings in the column *hand planting* are based on slope, depth to a restrictive layer, content of sand, plasticity index, rock fragments on or below the surface, depth to a water table, and ponding. The ratings indicate the expected difficulty of hand planting, which includes the proper placement of root systems of tree seedlings to a depth of up to 12 inches, using standard hand planting tools. It is assumed that necessary site preparation is completed before seedlings are planted.

Ratings in the column *mechanical planting* are based on slope, depth to a restrictive layer, content of sand, plasticity index, rock fragments on or below the surface, depth to a water table, and ponding. The ratings indicate the expected difficulty in using a mechanical planter, which includes proper placement of root systems of tree seedlings to a depth of up to 12 inches. It is assumed that necessary site preparation is completed before seedlings are planted.

Ratings in the column *use of harvest equipment* are based on slope, rock fragments on the surface, plasticity index, content of sand, surface texture, depth to a water table, and ponding. The ratings indicate the suitability for operating harvest equipment for off-road transport or harvest of logs and/or wood products by ground-based, wheeled or tracked equipment (fig. 5).

Ratings in the column *mechanical site preparation (surface)* are based on slope, depth to a restrictive layer, plasticity index, rock fragments on or below the surface, depth to a water table, and ponding. The part of the soil from the surface to a depth of



Figure 5.—Thinning of small trees, which is a common practice in timber management. Because of competition for scarce resources, overcrowding can reduce the growth and vigor of the trees.

about 12 inches is considered in the ratings. The ratings indicate the suitability of using surface-altering soil tillage equipment to prepare the site for planting or seeding.

Ratings in the column *roads (natural surface)* are based on slope, rock fragments on the surface, plasticity index, content of sand, surface texture, depth to a water table, ponding, flooding, and the hazard of soil slippage. The ratings indicate the suitability for using the natural surface of the soil for roads on which trucks transport logs and other wood products from the site.

In table 7b, ratings in the column *erosion on roads and trails* are based on the soil erodibility factor K, slope, and content of rock fragments. The ratings apply to unsurfaced roads and trails.

Ratings in the column *off-road or off-trail erosion* are based on slope and on the soil erodibility factor K. The soil loss is caused by sheet or rill erosion in off-road or off-trail areas where 50 to 75 percent of the surface has been exposed by logging, grazing, mining, or other kinds of disturbance.

Ratings in the column *soil rutting* are based on depth to a water table, rock fragments on or below the surface, surface texture, depth to a restrictive layer, and slope. Ruts form as a result of the operation of forest equipment. Ratings indicate limitations affecting the hazard or risk of ruts in the uppermost layers of the soil. Soil displacement and puddling (soil deformation and compaction) may occur simultaneously with the formation of ruts.

Ratings in the column *log landings* are based on slope, rock fragments on the surface, plasticity index, content of sand, surface texture, depth to a water table, ponding, flooding, and the hazard of soil slippage. Ratings indicate the suitability of the soil at the forest site to serve as a log landing and to allow the efficient and effective use of equipment for the temporary storage and handling of logs.

Ratings in the column *seedling survival* are based on flooding, ponding, depth to a water table, content of lime, reaction, salinity, available water capacity, soil moisture regime, soil temperature regime, aspect, and slope. Ratings indicate the impact of soil, physiographic, and climatic conditions on the survivability of newly established tree seedlings.

## Recreational Development

The soils of the survey area are rated in table 8 according to limitations that affect their suitability for recreational use. Soils are rated for camp areas, picnic areas, playgrounds, and paths and trails (fig. 6).

The ratings in the table are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, vegetation, access to water, potential water impoundment sites, and access to public sewer lines. The capacity of the soil to absorb septic tank effluent and the ability of the soil to support vegetation also are important. Soils that are subject to flooding are limited for recreational uses by the duration and intensity of flooding and the season when flooding occurs. In planning recreational facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

The ratings in the table are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect recreational site development. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Slightly limited* indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. *Moderately limited* indicates that



Figure 6.—A pond in an area of Sacul fine sandy loam, 1 to 8 percent slopes. This pond is used as a site for recreation and as a source of water for livestock.

the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Limited* indicates that the soil has one or more features that are significant limitations for the specified use. The limitations can be overcome, but overcoming them generally requires special design, soil reclamation, or installation procedures that may result in additional expense. Fair performance and moderate or high maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The numerical ratings are shown as decimal fractions ranging from 0.00 to 1.00. Limitation classes are assigned as follows:

Not limited .....	0.00
Slightly limited .....	0.01 to 0.30
Moderately limited .....	0.31 to 0.60
Limited .....	0.61 to 0.99
Very limited .....	1.00

The numerical ratings used to express the severity of individual limitations indicate gradations between the point at which a soil feature has the greatest negative impact on the use and the point at which the soil feature is not a limitation.

Limitation class terms and numerical ratings are shown for each limiting soil feature listed. As many as three soil features may be listed for each component.



The overall limitation rating for the component is based on the most severe limitation.

The information in table 8 can be supplemented by other information in this survey, for example, interpretations for building site development, construction materials, sanitary facilities, and water management.

*Camp areas* require site preparation, such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The soil properties that affect the performance of the areas after development are those that influence trafficability and promote the growth of vegetation, especially in heavily used areas. For good trafficability, the surface of camp areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

*Picnic areas* are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The ratings are based on the soil properties that affect the ease of developing picnic areas and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of picnic areas. For good trafficability, the surface of picnic areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

*Playgrounds* require soils that are nearly level, are free of stones, and can withstand intensive foot traffic. The ratings are based on the soil properties that affect the ease of developing playgrounds and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of playgrounds. For good trafficability, the surface of the playgrounds should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

*Paths and trails* for hiking and horseback riding should require little or no cutting and filling. The ratings are based on the soil properties that affect trafficability and erodibility. These properties are stoniness, a water table, ponding, flooding, slope, and texture of the surface layer. The best soils are not wet, are firm after rains, are not dusty when dry, and are not subject to frequent flooding during the period of use. They have moderate slopes and few or no stones or boulders on the surface.

The information in the table can be supplemented by other information in this survey, for example, interpretations for septic tank absorption fields in table 11 and interpretations for dwellings without basements and for local road and streets in table 10.

## Wildlife Habitat

Paul Brady, Natural Resources Conservation Service, helped prepare this section.

Union County has 585,000 acres of forestland, which is about 87 percent of the total area of the county. This acreage is by far the most forestland in any county in Arkansas and makes Union County a major force in the production and marketing of timber in the state.

## Soil Survey of Union County, Arkansas

The forestland includes about 209,000 acres of loblolly pine and shortleaf pine, 145,000 acres of mixed oak and pine, 123,000 acres of mostly oak and hickory, and 108,000 acres of bottomland hardwoods (oak, gum, and cypress). About 380,000 acres of this forestland is owned by private, nonindustrial landowners.

Bermudagrass and bahiagrass are the main species grown in pastureland and other grassland in the county. Some tall fescue and ryegrass are also grown.

Less than 600 acres in the county is used as cropland. The cropland is mostly truck patches growing potatoes, beans, peas, corn, and other garden vegetables.

The major plant groups and species that are important to wildlife in the county include oaks, hickories, dogwoods, hawthorns, shortleaf pine, loblolly pine, redcedar, blackberry, elderberry, viburnums, sumacs, greenbriers, honeysuckles, bahiagrass, bluestems, tick clover, other clovers, annual lespedeza, panicums, partridge pea, common ragweed, and vetches.

The abundant forests, interspersed pastures, fence rows, and numerous edges provide extensive food and cover for white-tailed deer, wild turkey, squirrels, bobwhite quail, raccoons, coyotes, opossums, foxes, rabbits, owls, nongame birds, small mammals, reptiles, and other wildlife. White-tailed deer are abundant in parts of the county. The wild turkey population is substantial and increasing.

The 65,000 acre Felsenthal National Wildlife Refuge includes about 28,000 acres in the eastern part of Union County. This refuge is one the premier areas for fish and wildlife in Arkansas. The lock and dam constructed on the Ouachita River by the U.S. Army Corps of Engineers made the refuge the location for the world's largest green-tree reservoir. The permanent pool in the Felsenthal Reservoir provides 15,000 acres of surface water. From fall through spring, an extra 5 feet of water is added to the reservoir. The extra water floods an additional 21,000 acres of bottomland hardwoods to the benefit of waterfowl and other wildlife (fig. 7). The refuge is the winter home for 60,000 to 100,000 ducks, mainly mallards and wood ducks.

The refuge is intensively managed for wildlife, especially waterfowl and woodland wildlife, such as deer, turkey, and the endangered red-cockaded woodpecker. The refuge has become one of the most popular areas for deer hunting in southeastern Arkansas and also boasts a substantial population of wild turkey.

The refuge has the largest known concentration of red-cockaded woodpecker colonies in Arkansas. About 20 of the 26 known colonies of the birds are in Union County. All wooded tracts containing these woodpecker colonies are carefully managed by the refuge to give these endangered species the best opportunities for maintaining and increasing their population.

Lowland habitats along streams and lakes in the county support a variety of furbearers, including beaver, muskrat, mink, raccoon, striped skunk, bobcat, and coyote.

The major sport fishing resources in the county are Felsenthal Reservoir (15,000 acres), Calion Lake (500 acres), and about 40 miles of the Ouachita River along the northern and eastern boundaries of the county. These areas, especially the lakes, provide good fishing for largemouth bass, bluegill, crappie, channel catfish, and other species.

Several thousand acres in smaller lakes and several thousand farm ponds, which average 0.25 to 0.5 acre, provide additional opportunities for fishing for bass, bluegill, redear sunfish, and channel catfish.

Soils affect the kind and amount of vegetation that is available to wildlife as food and cover. They also affect the construction of water impoundments. The kind and abundance of wildlife depend largely on the amount and distribution of food, cover, and water. Wildlife habitat can be created or improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the natural establishment of desirable plants.



**Figure 7.—An area of Una silty clay loam, ponded, that supports wetland wildlife habitat and provides an abundant aquatic environment.**

In tables 9a and 9b, the soils in the survey area are rated according to their potential for providing habitat for various kinds of wildlife. This information can be used in planning parks, wildlife refuges, nature study areas, and other developments for wildlife; in selecting soils that are suitable for establishing, improving, or maintaining specific elements of wildlife habitat; and in determining the intensity of management needed for each element of the habitat.

The ratings in the tables are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the specified use. *Not limited* indicates that the soil has features that are very favorable for the specified use. Habitat is easily established, improved, or maintained. *Slightly limited* indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Habitat can be established, improved, or maintained. *Moderately limited* indicates that the soil has features that are moderately favorable for the specified use. Habitat can be established, improved, or maintained in most places. Moderately intensive management is required for satisfactory results. *Limited* indicates that the soil has one or more features that are significant limitations for the specified use. Habitat is difficult to create, improve, or maintain in most places. Management is difficult and must be very intensive. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. Habitat is usually impractical or impossible to create, improve, or maintain. Management would be very difficult, and unsatisfactory results can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The

## Soil Survey of Union County, Arkansas

numerical ratings are shown as decimal fractions ranging from 0.00 to 1.00. Limitation classes are assigned as follows:

Not limited .....	0.00
Slightly limited .....	0.01 to 0.30
Moderately limited .....	0.31 to 0.60
Limited .....	0.61 to 0.99
Very limited .....	1.00

The numerical ratings used to express the severity of individual limitations indicate gradations between the point at which a soil feature has the greatest negative impact on the use and the point at which the soil feature is not a limitation.

Limitation class terms and numerical ratings are shown for each limiting soil feature listed. As many as three soil features may be listed for each component. The overall limitation class for the component is based on the most severe limitation.

The elements of wildlife habitat are described in the following paragraphs. Selection of appropriate species should be made from a list of locally adapted species.

*Grain and seed crops* are domestic grains and seed-producing herbaceous plants. Soil properties and features that affect the growth of grain and seed crops are depth of the root zone, texture of the surface layer, available water capacity, wetness, slope, surface stoniness, and flooding. Soil temperature and soil moisture are also considerations.

*Domestic grasses and legumes* are domestic perennial grasses and herbaceous legumes. Soil properties and features that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, flooding, and slope. Soil temperature and soil moisture are also considerations.

*Upland wild herbaceous plants* are native or naturally established grasses and forbs, including weeds. Soil properties and features that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, and flooding. Soil temperature and soil moisture are also considerations.

*Upland shrubs and vines* are bushy woody plants that produce fruit, buds, twigs, bark, and foliage. Soil properties and features that affect the growth of shrubs and vines are depth of the root zone, available water capacity, salinity, and soil moisture.

*Upland deciduous trees* and woody understory produce nuts or other fruit, buds, catkins, twigs, bark, and foliage. Soil properties and features that affect the growth of hardwood trees are depth of the root zone, available water capacity, and wetness.

*Upland mixed deciduous-conifer trees* and woody understory produce nuts or other fruit, buds, catkins, twigs, bark, browse, seeds, and foliage. Soil properties and features that affect the growth of these trees are depth of the root zone, available water capacity, and wetness.

*Riparian herbaceous plants* are annual and perennial native or naturally established grasses and forbs that grow on moist or wet sites. Soil properties and features affecting riparian herbaceous plants are surface texture, wetness, flooding, ponding, and surface stones.

*Riparian shrubs, vines, and trees* are bushy woody plants and trees that grow on moist or wet sites. Soil properties and features affecting these plants are surface texture, wetness, flooding, ponding, and surface stones.

*Freshwater wetland plants* are grasses, forbs, and shrubs that are adapted to wet soil conditions. The soils suitable for this habitat generally occur adjacent to springs, seeps, depressions, bottomlands, marshes, or backwater areas of flood plains. Most areas are ponded for some period of time during the year. Soil properties and



features affecting these plants are surface texture, wetness, ponding, and soil reaction.

*Irrigated freshwater wetland plants* are grasses, forbs, and shrubs that are adapted to wet soil conditions. The soils suitable for this habitat generally occur in areas of cropland, previously cropped areas, and marginal areas associated with cropland and wetlands. These areas may be ponded for some period of time during the year. These areas are generally suitable for the temporary or permanent restoration of wetland features. Soil properties and features affecting these plants are surface texture, permeability, wetness, ponding, and soil reaction.

## Engineering

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. Ratings are given for building site development, sanitary facilities, construction materials, water management, and waste management. The ratings are based on observed performance of the soils and on the data in the tables described under the heading "Soil Properties."

*Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil within a depth of 5 or 6 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.*

*The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.*

*Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations should be considered in planning, in site selection, and in design.*

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about grain-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 or 6 feet of the surface, soil wetness, depth to a seasonal high water table, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kinds of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to evaluate the potential of areas for residential, commercial, industrial, and recreational uses; make preliminary estimates of construction conditions; evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; evaluate sites for agricultural waste management; plan detailed onsite investigations of soils and geology; locate potential sources of gravel, sand, earthfill, and topsoil; plan drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation; and predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil maps, the soil descriptions, and other data provided in this survey, can be used to make additional interpretations.

Some of the terms used in this soil survey have a special meaning in soil science and are defined in the Glossary.

## Building Site Development

Soil properties influence the development of building sites, including the selection of the site, the design of the structure, construction, performance after construction, and maintenance. Table 10 shows the degree and kind of soil limitations that affect dwellings with and without basements, small commercial buildings, local roads and streets, and lawns and landscaping.

The ratings in the table are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect building site development. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Slightly limited* indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. *Moderately limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Limited* indicates that the soil has one or more features that are significant limitations for the specified use. The limitations can be overcome, but overcoming them generally requires special design, soil reclamation, or installation procedures that may result in additional expense. Fair performance and moderate or high maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The numerical ratings are shown as decimal fractions ranging from 0.00 to 1.00. Limitation classes are assigned as follows:

Not limited .....	0.00
Slightly limited .....	0.01 to 0.30
Moderately limited .....	0.31 to 0.60
Limited .....	0.61 to 0.99
Very limited .....	1.00

The numerical ratings used to express the severity of individual limitations indicate gradations between the point at which a soil feature has the greatest negative impact on the use and the point at which the soil feature is not a limitation.

Limitation class terms and numerical ratings are shown for each limiting soil feature listed. As many as three soil features may be listed for each component. The overall limitation rating for the component is based on the most severe limitation.

*Dwellings* are single-family houses of three stories or less. For dwellings without basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. For dwellings with basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of about 7 feet. The ratings for dwellings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility. Compressibility is inferred from the Unified classification. The properties that affect the ease and amount of

excavation include a water table, ponding, flooding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

*Small commercial buildings* are structures that are less than three stories high and do not have basements. The foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. The ratings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility (which is inferred from the Unified classification). The properties that affect the ease and amount of excavation include flooding, a water table, ponding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

*Local roads and streets* have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material; a base of gravel, crushed rock, or soil material stabilized by lime or cement; and a surface of flexible material (asphalt), rigid material (concrete), or gravel with a binder. The ratings are based on the soil properties that affect the ease of excavation and grading and the traffic-supporting capacity. The properties that affect the ease of excavation and grading are depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, a water table, ponding, flooding, the amount of large stones, and slope. The properties that affect the traffic-supporting capacity are soil strength (as inferred from the AASHTO group index number), subsidence, linear extensibility (shrink-swell potential), the potential for frost action, a water table, and ponding.

*Lawns and landscaping* require soils on which turf and ornamental trees and shrubs can be established and maintained. Irrigation is not considered in the ratings. The ratings are based on the soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are reaction; a water table; ponding; depth to bedrock or a cemented pan; the available water capacity in the upper 40 inches; the content of salts, sodium, or calcium carbonate; and sulfidic materials. The properties that affect trafficability are flooding, a water table, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer.

## **Sanitary Facilities**

The soils of the survey area are rated in table 11 according to limitations that affect their suitability for sanitary facilities. Soils are rated for septic tank absorption fields, sewage lagoons, sanitary landfills, and daily cover for landfill.

The ratings in the table are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect sanitary facilities. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Slightly limited* indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. *Moderately limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Limited* indicates that the soil has one or more features that are significant limitations for the specified use. The limitations can be overcome, but overcoming them generally requires special design, soil reclamation, or installation procedures that may result in additional expense. Fair



performance and moderate or high maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The numerical ratings are shown as decimal fractions ranging from 0.00 to 1.00. Limitation classes are assigned as follows:

Not limited .....	0.00
Slightly limited .....	0.01 to 0.30
Moderately limited .....	0.31 to 0.60
Limited .....	0.61 to 0.99
Very limited .....	1.00

The numerical ratings used to express the severity of individual limitations indicate gradations between the point at which a soil feature has the greatest negative impact on the use and the point at which the soil feature is not a limitation.

Limitation class terms and numerical ratings are shown for each limiting soil feature listed. As many as three soil features may be listed for each component. The overall limitation rating for the component is based on the most severe limitation.

*Septic tank absorption fields* are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 60 inches is evaluated. The ratings are based on the soil properties that affect absorption of the effluent, construction and maintenance of the system, and public health. Permeability, a water table, ponding, depth to bedrock or a cemented pan, and flooding affect absorption of the effluent. Stones and boulders, ice, and bedrock or a cemented pan interfere with installation. Subsidence interferes with installation and maintenance. Excessive slope may cause lateral seepage and surfacing of the effluent in downslope areas.

Some soils are underlain by loose sand and gravel or fractured bedrock at a depth of less than 4 feet below the distribution lines. In these soils the absorption field may not adequately filter the effluent, particularly when the system is new. As a result, the ground water may be contaminated. Unsatisfactory performance of septic tank absorption fields, including excessively slow absorption of effluent, surfacing of effluent, hillside seepage, and contamination of ground water, can affect public health.

*Sewage lagoons* are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water. Considered in the ratings are slope, permeability, a water table, ponding, depth to bedrock or a cemented pan, flooding, large stones, and content of organic matter.

Soil permeability is a critical property affecting the suitability for sewage lagoons. Most porous soils eventually become sealed when they are used as sites for sewage lagoons. Until sealing occurs, however, the hazard of pollution is severe. Soils that have a permeability rate of more than 2 inches per hour are too porous for the proper functioning of sewage lagoons. In these soils, seepage of the effluent can result in contamination of the ground water. Ground-water contamination is also a hazard if fractured bedrock is within a depth of 40 inches, if the water table is high enough to raise the level of sewage in the lagoon, or if floodwater overtops the lagoon.

A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope, bedrock, and cemented pans can cause

construction problems, and large stones can hinder compaction of the lagoon floor. If the lagoon is to be uniformly deep throughout, slope must be gentle enough and the soil material must be thick enough over bedrock or a cemented pan to make land smoothing practical.

A *trench sanitary landfill* is an area where solid waste is placed in successive layers in an excavated trench. The waste is spread, compacted, and covered daily with a thin layer of soil excavated at the site. When the trench is full, a final cover of soil material at least 2 feet thick is placed over the landfill. The ratings in the table are based on the soil properties that affect the risk of pollution, the ease of excavation, trafficability, and revegetation. These properties include permeability, depth to bedrock or a cemented pan, a water table, ponding, slope, flooding, texture, stones and boulders, highly organic layers, soil reaction, and content of salts and sodium. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, onsite investigation may be needed.

Hard, nonrippable bedrock, creviced bedrock, or highly permeable strata in or directly below the proposed trench bottom can affect the ease of excavation and the hazard of ground-water pollution. Slope affects construction of the trenches and the movement of surface water around the landfill. It also affects the construction and performance of roads in areas of the landfill.

Soil texture and consistence affect the ease with which the trench is dug and the ease with which the soil can be used as daily or final cover. They determine the workability of the soil when dry and when wet. Soils that are plastic and sticky when wet are difficult to excavate, grade, or compact and are difficult to place as a uniformly thick cover over a layer of refuse.

The soil material used as the final cover for a trench landfill should be suitable for plants. It should not have excess sodium or salts and should not be too acid. The surface layer generally has the best workability, the highest content of organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

In an *area sanitary landfill*, solid waste is placed in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil from a source away from the site. A final cover of soil material at least 2 feet thick is placed over the completed landfill. The ratings in the table are based on the soil properties that affect trafficability and the risk of pollution. These properties include flooding, permeability, a water table, ponding, slope, and depth to bedrock or a cemented pan.

Flooding is a serious problem because it can result in pollution in areas downstream from the landfill. If permeability is too rapid or if fractured bedrock, a fractured cemented pan, or the water table is close to the surface, the leachate can contaminate the water supply. Slope is a consideration because of the extra grading required to maintain roads in the steeper areas of the landfill. Also, leachate may flow along the surface of the soils in the steeper areas and cause difficult seepage problems.

*Daily cover for landfill* is the soil material that is used to cover compacted solid waste in an area sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste. The ratings in the table also apply to the final cover for a landfill. They are based on the soil properties that affect workability, the ease of digging, and the ease of moving and spreading the material over the refuse daily during wet and dry periods. These properties include soil texture, a water table, ponding, rock fragments, slope, depth to bedrock or a cemented pan, reaction, and content of salts, sodium, or lime.

Loamy or silty soils that are free of large stones and excess gravel are the best cover for a landfill. Clayey soils may be sticky and difficult to spread; sandy soils are subject to wind erosion.

Slope affects the ease of excavation and of moving the cover material. Also, it can influence runoff, erosion, and reclamation of the borrow area.

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock, a cemented pan, or the water table to permit revegetation. The soil material used as the final cover for a landfill should be suitable for plants. It should not have excess sodium, salts, or lime and should not be too acid.

## Construction Materials and Excavating

The soils of the survey area are rated in table 12 as a source of roadfill, sand, gravel, or topsoil. Normal compaction, minor processing, and other standard construction practices are assumed. The soils are also rated according to limitations that affect their suitability for shallow excavations. The ratings in the table are both verbal and numerical.

Rating class terms, as follows, are used to indicate the extent to which the soils are limited by soil features that affect their use as a source for roadfill, sand, gravel, or topsoil or their suitability for shallow excavations. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Slightly limited* indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. *Moderately limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Limited* indicates that the soil has one or more features that are significant limitations for the specified use. The limitations can be overcome, but overcoming them generally requires special design, soil reclamation, or installation procedures that may result in additional expense. Fair performance and moderate or high maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The numerical ratings are shown as decimal fractions ranging from 0.00 to 1.00. Limitation classes are assigned as follows:

Not limited .....	0.00
Slightly limited .....	0.01 to 0.30
Moderately limited .....	0.31 to 0.60
Limited .....	0.61 to 0.99
Very limited .....	1.00

The numerical ratings used to express the severity of individual limitations indicate gradations between the point at which a soil feature has the greatest negative impact on the use and the point at which the soil feature is not a limitation.

Limitation class terms and numerical ratings are shown for each limiting soil feature listed. As many as three soil features may be listed for each component. The overall limitation rating for the component is based on the most severe limitation.

*Roadfill* is soil material that is excavated in one place and used in road embankments in another place. In this table, the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the whole soil, from the surface to a depth of about 5 feet. It is assumed that soil layers will be mixed when the soil material is excavated and spread.

The ratings are based on the amount of suitable material and on soil properties that affect the ease of excavation and the performance of the material after it is in place. The thickness of the suitable material is a major consideration. The ease of excavation is affected by large stones, a water table, and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the AASHTO classification of the soil) and linear extensibility (shrink-swell potential).

*Sand and gravel* are natural aggregates suitable for commercial use with a minimum of processing. They are used in many kinds of construction. Specifications for each use vary widely. In the table, only the probability of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material. The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the Unified classification of the soil), the thickness of suitable material, and the content of rock fragments. If the lowest layer of the soil contains sand or gravel, the soil is rated as a probable source regardless of the thickness. The assumption is that the sand or gravel layer below the depth of observation exceeds the minimum thickness.

*Topsoil* is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area. The ratings are based on the soil properties that affect plant growth; the ease of excavating, loading, and spreading the material; and reclamation of the borrow area. Toxic substances, soil reaction, and the properties that are inferred from soil texture, such as available water capacity and fertility, affect plant growth. The ease of excavating, loading, and spreading is affected by rock fragments, slope, a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, a water table, rock fragments, depth to bedrock or a cemented pan, and toxic material.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

*Shallow excavations* are trenches or holes dug to a maximum depth of 5 or 6 feet for basements, graves, utility lines, open ditches, or other purposes. The ratings are based on the soil properties that influence the ease of digging and the resistance to sloughing. Depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, the amount of large stones, and dense layers influence the ease of digging, filling, and compacting. Depth to the seasonal high water table, flooding, and ponding may restrict the period when excavations can be made. Slope influences the ease of using machinery. Soil texture, depth to the water table, and linear extensibility (shrink-swell potential) influence the resistance to sloughing.

## Water Management

The soils of the survey area are rated in table 13 according to limitations that affect their suitability for water management. Soils are rated for pond reservoir areas, drainage, irrigation, terraces and diversions, and grassed waterways. Restrictive features that affect each soil for the specified use are also listed in the table.

The ratings in the table are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the specified use. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected.

## Soil Survey of Union County, Arkansas

*Slightly limited* indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. *Moderately limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Limited* indicates that the soil has one or more features that are significant limitations for the specified use. The limitations can be overcome, but overcoming them generally requires special design, soil reclamation, or installation procedures that may result in additional expense. Fair performance and moderate or high maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The numerical ratings are shown as decimal fractions ranging from 0.00 to 1.00. Limitation classes are assigned as follows:

Not limited .....	0.00
Slightly limited .....	0.01 to 0.30
Moderately limited .....	0.31 to 0.60
Limited .....	0.61 to 0.99
Very limited .....	1.00

The numerical ratings used to express the severity of individual limitations indicate gradations between the point at which a soil feature has the greatest negative impact on the use and the point at which the soil feature is not a limitation.

Limitation class terms and numerical ratings are shown for each limiting soil feature listed. As many as three soil features may be listed for each component. The overall limitation rating for the component is based on the most severe limitation.

*Pond reservoir areas* hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the permeability of the soil and the depth to fractured bedrock, or other permeable material. Slope can affect the storage capacity of the reservoir area.

*Drainage* is the removal of excess surface and subsurface water from the soil. How easily and effectively the soil is drained depends on the depth to bedrock, permeability, depth to a water table, ponding, slope, and flooding. Excavating and grading and the stability of ditchbanks are affected by depth to bedrock or a cemented pan, large stones, slope, and the likelihood that cutbanks will cave. The productivity of the soil after drainage is adversely affected by extreme acidity or by toxic substances in the root zone, such as salts, sodium, and sulfur. The availability of drainage outlets is not considered in the ratings.

*Irrigation* is the controlled application of water to supplement rainfall and support plant growth. The design and management of an irrigation system are affected by depth to a water table, ponding, flooding, available water capacity, intake rate, permeability, erodibility, and slope. The construction of a system is affected by large stones and depth to bedrock. The performance of a system is affected by the depth of the root zone, reaction, and the amount of salts, sodium, sulfur, lime, or gypsum.

*Terraces and diversions* are embankments or a combination of channels and ridges constructed across a slope to control erosion and conserve moisture by intercepting runoff. Slope, a water table, ponding, large stones, and depth to bedrock affect the construction of terraces and diversions. A restricted rooting depth, erodibility, an excessively coarse texture, and restricted permeability adversely affect maintenance.



*Grassed waterways* are natural or constructed channels, generally broad and shallow, that conduct surface water to outlets at a nonerosive velocity. Large stones, a water table, slope, and depth to bedrock affect the construction of grassed waterways. Erodibility, soil moisture regime, available water capacity, restricted rooting depth, restricted permeability, and toxic substances, such as salts and sodium, affect the growth and maintenance of the grass after construction.

## **Agricultural Waste Management**

Soil properties are important considerations in areas where soils are used as sites for the treatment and disposal of organic waste and wastewater. Selection of soils with properties that favor waste management can help to prevent environmental damage.

Table 14 shows the degree and kind of soil limitations affecting the treatment of agricultural waste, including municipal and food-processing wastewater and effluent from lagoons or storage ponds. Municipal wastewater is the waste stream from a municipality. It contains domestic waste and may contain industrial waste. It may have received primary or secondary treatment. It is rarely untreated sewage. Food-processing wastewater results from the preparation of fruits, vegetables, milk, cheese, and meats for public consumption. In places it has a high content of sodium and chloride. In the context of this table, the effluent in lagoons and storage ponds is from facilities used to treat or store food-processing wastewater or domestic or animal waste. Domestic and food-processing wastewater is very dilute, and the effluent from the facilities that treat or store it commonly has a very low content of carbonaceous and nitrogenous material; the content of nitrogen commonly ranges from 10 to 30 milligrams per liter. The wastewater from animal waste treatment lagoons or storage ponds, however, has much higher concentrations of these materials, mainly because the manure has not been diluted as much as the domestic waste. The content of nitrogen in this wastewater generally ranges from 50 to 2,000 milligrams per liter. When wastewater is applied, checks should be made to ensure that nitrogen, heavy metals, and salts are not added in excessive amounts.

The ratings in the table are for waste management systems that not only dispose of and treat organic waste or wastewater but also are beneficial to crops (application of manure and food-processing waste, application of sewage sludge, and disposal of wastewater through irrigation) and for waste management systems that are designed only for the purpose of wastewater disposal and treatment (treatment of wastewater by slow rate process and by rapid infiltration process).

The ratings in the table are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the specified use. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Slightly limited* indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. *Moderately limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Limited* indicates that the soil has one or more features that are significant limitations for the specified use. The limitations can be overcome, but overcoming them generally requires special design, soil reclamation, or installation procedures that may result in additional expense. Fair performance and moderate or high maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation,

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special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The numerical ratings are shown as decimal fractions ranging from 0.00 to 1.00. Limitation classes are assigned as follows:

Not limited .....	0.00
Slightly limited .....	0.01 to 0.30
Moderately limited .....	0.31 to 0.60
Limited .....	0.61 to 0.99
Very limited .....	1.00

The numerical ratings used to express the severity of individual limitations indicate gradations between the point at which a soil feature has the greatest negative impact on the use and the point at which the soil feature is not a limitation.

Limitation class terms and numerical ratings are shown for each limiting soil feature listed. As many as three soil features may be listed for each component. The overall limitation rating for the component is based on the most severe limitation.

*Land application of manure and food-processing waste* not only disposes of waste material but also improves crop production by increasing the supply of nutrients in the soils where the material is applied. Manure is the excrement of livestock and poultry, and food-processing waste is damaged fruit and vegetables and the peelings, stems, leaves, pits, and soil particles removed in food preparation. The manure and food-processing waste are either solid, slurry, or liquid. Their nitrogen content varies. A high content of nitrogen limits the application rate. Toxic or otherwise dangerous wastes, such as those mixed with the lye used in food processing, are not considered in the ratings.

The ratings are based on the soil properties that affect absorption, plant growth, microbial activity, erodibility, the rate at which the waste is applied, and the method by which the waste is applied. The properties that affect absorption include permeability, a water table, ponding, the sodium adsorption ratio, depth to bedrock or a cemented pan, and available water capacity. The properties that affect plant growth and microbial activity include reaction, the sodium adsorption ratio, salinity, and bulk density. The wind erodibility group, the soil erodibility factor K, and slope are considered in estimating the likelihood of wind erosion or water erosion. Stones, cobbles, a water table, ponding, and flooding can hinder the application of waste.

*Land application of municipal sewage sludge* not only disposes of waste material but also improves crop production by increasing the supply of nutrients in the soils where the material is applied. In the context of this table, sewage sludge is the residual product of the treatment of municipal sewage. The solid component consists mainly of cell mass, primarily bacteria cells that developed during secondary treatment and that have incorporated soluble organics into their own bodies. The sludge has small amounts of sand, silt, and other solid debris. The content of nitrogen varies. Some sludge has constituents that are toxic to plants or hazardous to the food chain, such as heavy metals and exotic organic compounds, and should be analyzed chemically prior to use.

The content of water in the sludge ranges from about 98 percent to less than 40 percent. The sludge is considered liquid if it is more than about 90 percent water, slurry if it is about 50 to 90 percent water, and solid if it is less than about 50 percent water.

The ratings in the table are based on the soil properties that affect absorption, plant growth, microbial activity, erodibility, the rate at which the sludge is applied, and the method by which the sludge is applied. The properties that affect absorption, plant growth, and microbial activity include permeability, a water table, ponding, the sodium adsorption ratio, depth to bedrock or a cemented pan, available water capacity,



reaction, salinity, and bulk density. The wind erodibility group, the soil erodibility factor K, and slope are considered in estimating the likelihood of wind erosion or water erosion. Stones, cobbles, a water table, ponding, and flooding can hinder the application of sludge.

*Disposal of wastewater by irrigation* not only disposes of municipal wastewater and wastewater from food-processing plants, lagoons, and storage ponds but also improves crop production by increasing the amount of water available to crops. The ratings in the table are based on the soil properties that affect the design, construction, management, and performance of the irrigation system. The properties that affect design and management include the sodium adsorption ratio, a water table, ponding, available water capacity, permeability, slope, and flooding. The properties that affect construction include stones, cobbles, depth to bedrock or a cemented pan, a water table, and ponding. The properties that affect performance include depth to bedrock or a cemented pan, bulk density, the sodium adsorption ratio, salinity, reaction, and the cation-exchange capacity, which is used to estimate the capacity of a soil to adsorb heavy metals.

*Treatment of wastewater by slow rate process* applies wastewater to land at a rate normally between 0.5 inch and 4.0 inches per week. The application rate commonly exceeds the rate needed for irrigation of cropland. The applied wastewater is treated as it moves through the soil. Much of the treated water percolates to the ground water, and some enters the atmosphere through evapotranspiration. The applied water generally is not allowed to run off the surface. Waterlogging is prevented either through control of the application rate or through the use of tile drains, or both.

The ratings in the table are based on the soil properties that affect absorption, plant growth, microbial activity, erodibility, and the application of waste. The properties that affect absorption include the sodium adsorption ratio, a water table, ponding, available water capacity, permeability, depth to bedrock or a cemented pan, reaction, the cation-exchange capacity, and slope. Reaction, the sodium adsorption ratio, salinity, and bulk density affect plant growth and microbial activity. The wind erodibility group, the soil erodibility factor K, and slope are considered in estimating the likelihood of wind erosion or water erosion. Stones, cobbles, a water table, ponding, and flooding can hinder the application of waste.

*Treatment of wastewater by rapid infiltration process* applies wastewater in a level basin at a rate of 4 to 120 inches per week. The water percolates through the soil, eventually reaching the ground water. The application rate commonly exceeds the rate needed for irrigation of cropland. Vegetation is not a necessary part of the treatment; hence, the basins may or may not be vegetated. The thickness of the soil material needed for proper treatment of the wastewater is more than 72 inches. As a result, geologic and hydrologic investigation is needed to ensure proper design and performance and to determine the risk of ground-water pollution.

The ratings in the table are based on the soil properties that affect the risk of pollution and the design, construction, and performance of the system. A water table, ponding, flooding, and depth to bedrock or a cemented pan affect the risk of pollution and the design and construction of the system. Slope, stones, and cobbles also affect design and construction. Permeability and reaction affect performance.

# Soil Properties

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Data relating to soil properties are collected during the course of the soil survey. The data and the estimates of soil and water features, listed in tables, are explained on the following pages.

Soil properties are determined by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine grain-size distribution, plasticity, and compaction characteristics.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help to characterize key soils.

The estimates of soil properties shown in the tables include the range of grain-size distribution and Atterberg limits, the engineering classification, and the physical and chemical properties of the major layers of each soil. Pertinent soil and water features also are given.

## Engineering Index Properties

Table 15 gives estimates of the engineering classification and of the range of index properties for the major layers of each soil in the survey area. Most soils have layers of contrasting properties within the upper 5 or 6 feet.

*Depth* to the upper and lower boundaries of each layer is indicated. The range in depth and information on other properties of each layer are given for each soil series under the heading "Soil Series and Their Morphology."

*Texture* is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is as much as about 15 percent, an appropriate modifier is added, for example, "gravelly." Textural terms are defined in the Glossary.

*Classification* of the soils is determined according to the Unified soil classification system (ASTM, 2005) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 2004).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to grain-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, CL-ML.

The AASHTO system classifies soils according to those properties that affect

roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of grain-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest.

*Rock fragments* larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

*Percentage (of soil particles) passing designated sieves* is the percentage of the soil fraction less than 3 inches in diameter based on an oven-dry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

*Liquid limit and plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

The estimates of grain-size distribution are generally rounded to the nearest 5 percent. Thus, if the ranges of gradation and Atterberg limits extend a marginal amount (1 or 2 percentage points) across classification boundaries, the classification in the marginal zone is omitted in the table.

## Physical and Chemical Properties

Table 16 shows estimates of some characteristics and features that affect soil behavior. These estimates are given for the major layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

*Clay* as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In this table, the estimated clay content of each major soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The amount and kind of clay greatly affect the fertility and physical condition of the soil. They determine the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, permeability, plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

*Moist bulk density* is the weight of soil (oven-dry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at  $\frac{1}{3}$ -bar moisture tension. Weight is determined after drying the soil at 105 degrees C. In this table, the estimated moist bulk density of each major soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. A bulk density of more than 1.6 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

*Saturated hydraulic conductivity (Ksat)* refers to the ease with which pores in a saturated soil transmit water. The estimates in the table are expressed in terms of micrometers per second. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Saturated hydraulic conductivity (Ksat) is considered in the design of soil drainage systems and septic tank absorption fields.

*Available water capacity* refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each major soil layer. The capacity varies, depending on soil properties that affect the retention of water and the depth of the root zone. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

*Linear extensibility* refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. It is an expression of the volume change between the water content of the clod at  $\frac{1}{3}$ - or  $\frac{1}{10}$ -bar tension (33kPa or 10kPa tension) and oven dryness. The volume change is reported in the table as percent change for the whole soil. Volume change is influenced by the amount and type of clay minerals in the soil.

Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent; moderate if 3 to 6 percent; high if 6 to 9 percent; and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.

*Erosion factor Kw* (formerly K factor) indicates the susceptibility of a soil to sheet and rill erosion by water. Factor Kw is one of six factors used in the Universal Soil Loss Equation (USLE), and may be used in the Revised Universal Soil Loss Equation (RUSLE), to predict the average annual rate of soil loss by sheet and rill erosion. Losses are expressed in tons per acre per year. These estimates are based primarily on percentage of silt, sand, and organic matter (up to 4 percent) and on soil structure and permeability. Factor Kw is adjusted for the effect of rock fragments. Values of Kw range from 0.02 to 0.69. The higher the value, the more susceptible the soil is to sheet and rill erosion by water.

*Erosion factor Kf* indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size. Factor Kf is one of the factors that may be used in the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year.

*Erosion factor T* is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

*Wind erodibility groups* are made up of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible. The groups are described in the "National Soil Survey Handbook," which is available in local offices of the Natural Resources Conservation Service or on the Internet.

*Wind erodibility index* is a numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion. There is a close correlation between wind erosion and the texture of the surface layer, the size and durability of surface clods, rock fragments, organic matter, and a calcareous reaction. Soil moisture and frozen soil layers also influence wind erosion.

*Cation-exchange capacity* is the total amount of extractable bases that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. Soils having a low cation-exchange capacity hold fewer cations and may require more frequent applications of fertilizer than soils having a high cation-exchange capacity. The ability to retain cations reduces the hazard of ground-water pollution.

*Effective cation-exchange capacity* refers to the sum of extractable bases plus aluminum expressed in terms of milliequivalents per 100 grams of soil. It is determined for soils that have pH of less than 5.5.

*Soil reaction* is a measure of acidity or alkalinity. The pH of each soil horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

*Organic matter* is the plant and animal residue in the soil at various stages of decomposition. In the table, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter in a soil can be maintained or increased by returning crop residue to the soil. Organic matter affects the available water capacity, infiltration rate, and tilth. It is a source of nitrogen and other nutrients for crops.

## **Risk of Corrosion**

Table 17 gives estimates of the risk of corrosion. The estimates are used in land use planning that involves engineering considerations.

*Risk of corrosion* pertains to potential soil-induced electrochemical or chemical action that dissolves or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. The steel in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than steel in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low*, *moderate*, or *high*, is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion is also expressed as *low*, *moderate*, or *high*. It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

## **Water Features**

Table 18 gives estimates of various water features. The estimates are used in land use planning that involves engineering considerations.

*Hydrologic soil groups* are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained



soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

*Surface runoff* refers to the loss of water from an area by flow over the land surface. Surface runoff classes are based on slope, climate, and vegetative cover. It is assumed that the surface of the soil is bare and that the retention of surface water resulting from irregularities in the ground surface is minimal. The classes are negligible, very low, low, medium, high, and very high.

The *months* in the table indicate the portion of the year in which the feature is most likely to be a concern.

*Water table* refers to a saturated zone in the soil. The table indicates, by month, depth to the top (*upper limit*) and base (*lower limit*) of the saturated zone in most years. Estimates of the upper and lower limits are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors or mottles (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

*Ponding* is standing water in a closed depression. Unless a drainage system is installed, the water is removed only by percolation, transpiration, or evaporation. The table indicates *surface water depth* and the *duration* and *frequency* of ponding. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, rare, occasional, and frequent. *None* means that ponding is not probable; *rare* that it is unlikely but possible under unusual weather conditions (the chance of ponding is nearly 0 percent to 5 percent in any year); *occasional* that it occurs, on the average, once or less in 2 years (the chance of ponding is 5 to 50 percent in any year); and *frequent* that it occurs, on the average, more than once in 2 years (the chance of ponding is more than 50 percent in any year).

*Flooding* is the temporary inundation of an area caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after rainfall or snowmelt is not considered flooding, and water standing in swamps and marshes is considered ponding rather than flooding.

*Duration and frequency* are estimated. Duration is expressed as *extremely brief* if 0.1 hour to 4 hours, *very brief* if 4 hours to 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, very rare, rare, occasional, frequent, and very frequent. *None* means that flooding is not probable; *very rare* that it is very unlikely but possible under extremely unusual weather conditions (the chance of flooding is less than 1 percent in any year); *rare* that it is unlikely but possible under unusual weather conditions (the chance of flooding is 1 to 5 percent in any year); *occasional* that it occurs infrequently under normal weather conditions (the chance of flooding is 5 to 50 percent in any year); *frequent* that it is likely to occur often under normal weather conditions (the chance of flooding is more than 50 percent in any year but is less than 50 percent in all months in any year); and *very frequent* that it is likely to occur very often under normal weather conditions (the chance of flooding is more than 50 percent in all months of any year).

The information is based on evidence in the soil profile, namely thin strata of



gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and little or no horizon development.

Also considered are local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

## Hydric Soils

In this section, hydric soils are defined and described. The hydric status of soils in the survey area is shown in table 19.

The three essential characteristics of wetlands are hydrophytic vegetation, hydric soils, and wetland hydrology (Cowardin and others, 1979; U.S. Army Corps of Engineers, 1987; National Research Council, 1995; Tiner, 1985). Criteria for each of the characteristics must be met for areas to be identified as wetlands. Undrained hydric soils that have natural vegetation should support a dominant population of ecological wetland plant species. Hydric soils that have been converted to other uses should be capable of being restored to wetlands.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). These soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

Nearly all hydric soils exhibit characteristic morphologies that result from repeated periods of saturation and/or inundation for more than a few days. Saturation or inundation combined with microbial activity in the soil causes a depletion of oxygen. This anaerobiosis promotes biogeochemical processes, such as the accumulation of organic matter and the reduction, translocation, and accumulation of iron and other reducible elements. These processes result in characteristic morphologies that persist in the soil during both wet and dry periods, making them particularly useful for identifying hydric soils.

Morphological features of hydric soils indicate that saturation and anaerobic conditions have existed under either contemporary or recent former hydrologic regimes. Features that do not reflect contemporary or recent hydrologic conditions of saturation and anaerobiosis are relict features. Typically, contemporary and recent hydric soil morphologies have diffuse boundaries; relict hydric soil features have sharp boundaries. Where soil morphology is inconsistent with the landscape, vegetation, or observable hydrology, it may be necessary to obtain the assistance of an experienced soil scientist or wetland scientist to determine whether the soil is hydric.

If soils are wet enough for a long enough period to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils are specified in "Field Indicators of Hydric Soils in the United States" (Hurt and others, 1998).

The definition of hydric soils provided by the National Technical Committee for Hydric Soils identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 1995). These criteria are used to identify a phase of a soil series that normally is associated with wetlands.

The criteria used are selected estimated soil properties that are described in “Soil Taxonomy” (Soil Survey Staff, 1999), “Keys to Soil Taxonomy” (Soil Survey Staff, 1998), and the “Soil Survey Manual” (Soil Survey Division Staff, 1993).

Hydric soils are identified by examining and describing the soil to a depth of about 20 inches. This depth may be greater if determination of an appropriate indicator so requires. It is always recommended that soils be excavated and described to the depth necessary for an understanding of the redoximorphic processes. Then, using the completed soil descriptions, soil scientists can compare the soil features required by each indicator and specify which indicators have been matched with the conditions observed in the soil. The soil can be identified as a hydric soil if at least one of the approved indicators is present.

The following criteria reflect those soils that are likely to meet the definitions of hydric soils in Union County: soils in Aquic suborders, great groups, or subgroups that are poorly drained or very poorly drained and have a water table at a depth of 1.0 foot or less during the growing season if permeability is less than 6.0 in/hr in any layer within a depth of 20 inches (criteria code 2B3); soils that are frequently ponded for long duration or very long duration during the growing season (criteria code 3); and soils that are frequently flooded for long duration or very long duration during the growing season (criteria code 4).

Table 19 lists the map units in Union County that have a hydric component, the hydric soil designations for those map units, and the criteria met for each major component in those map units. The listing includes major components that are phases of soil series that may or may not have been drained or protected from flooding. Some soil series that are designated as hydric have phases that are not hydric depending on flooding and ponding characteristics. This list has a number of agricultural and nonagricultural applications, including assistance in land-use planning, conservation planning, and assessment of potential wildlife habitat. An area that meets the hydric soil criteria must also meet the criteria for hydrophytic vegetation and wetland hydrology in order for to be classified as a jurisdictional wetland (FICWD, 1989).

The identification in table 19 of the map units that meet the definition of hydric soils and have at least one of the hydric soil indicators can help in planning land uses. However, map units that are made up of hydric soils may have small areas, or inclusions, of nonhydric soils in the higher positions on the landform, and map units made up of nonhydric soils may have inclusions of hydric soils in the lower positions on the landform. Onsite investigation is needed to determine the hydric soils on a specific site (National Research Council, 1995; Hurt and others, 1998).



# Classification of the Soils

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The system of soil classification used by the National Cooperative Soil Survey has six categories (Soil Survey Staff, 1998 and 1999). Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. Table 20 shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

**ORDER.** Twelve soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is Ultisol.

**SUBORDER.** Each order is divided into suborders primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Aquult (*Aqu*, meaning wet conditions, plus *ult*, from Utisol).

**GREAT GROUP.** Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; type of saturation; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Paleaquults (*Pale*, meaning old development, plus *aquult*, the suborder of the Utisols that has aquatic properties).

**SUBGROUP.** Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic subgroup is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other taxonomic class. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Typic* identifies the subgroup that typifies the great group. An example is Typic Paleaquults.

**FAMILY.** Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Generally, the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle size, mineral content, soil temperature regime, soil depth, and reaction. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is coarse-loamy, siliceous, semiactive, thermic Typic Paleaquults.

**SERIES.** The series consists of soils within a family that have horizons similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile.

## Soil Series and Their Morphology

In this section, each soil series recognized in the survey area is described. Characteristics of the soil and the material in which it formed are identified for each series. A pedon, a small three-dimensional area of soil, that is typical of the series in

the survey area is described. The detailed description of each soil horizon follows standards in the "Soil Survey Manual" (Soil Survey Division Staff, 1993). Many of the technical terms used in the descriptions are defined in "Soil Taxonomy" (Soil Survey Staff, 1999) and in "Keys to Soil Taxonomy" (Soil Survey Staff, 1998). Unless otherwise indicated, colors in the descriptions are for moist soil and broken faced peds. Following the pedon description is the range of important characteristics of the soils in the series.

The map units of each soil series are described in the section "Detailed Soil Map Units."

## **Amy Series**

*MLRA:* Western Coastal Plain

*Geomorphic setting:* Stream terraces

*Position on terrace:* Treads

*Parent material:* Silty alluvium

*Drainage class:* Poorly drained

*Saturated hydraulic conductivity class:* Slow

*Soil depth class:* Very deep

*Shrink-swell potential:* Low

*Slope:* 0 to 3 percent

*Taxonomic classification:* Fine-silty, siliceous, semiactive, thermic Typic Endoaquults

### **Associated Soils**

The Amy series is commonly associated with Gurdon, Guyton, Harleston, Smithton, and Una soils.

### **Typical Pedon**

Amy silt loam, 0 to 1 percent slopes, rarely flooded; located in a wooded area of intermixed conifers and hardwoods; SE<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> sec. 19, T. 19 S., R. 17 W.

A—0 to 5 inches; grayish brown (10YR 5/2) silt loam; weak fine subangular blocky structure; friable; many fine and many medium roots; strongly acid; clear smooth boundary.

Eg—5 to 16 inches; light gray (10YR 7/1) silt loam; weak medium subangular blocky structure; friable; many fine and many medium roots; 2 percent fine distinct yellowish brown (10YR 5/4) masses of oxidized iron; very strongly acid; gradual smooth boundary.

Btg1—16 to 33 inches; gray (10YR 6/1) silt loam; moderate medium subangular blocky structure; friable; few fine roots; 2 percent distinct clay films on faces of peds; 2 percent fine distinct dark yellowish brown (10YR 4/4) masses of oxidized iron; less than 5 percent, by total volume, tongues and interfingers of light gray (10YR 7/1) silt; very strongly acid; clear wavy boundary.

Btg2—33 to 48 inches; light brownish gray (10YR 6/2) silty clay loam; moderate medium subangular blocky structure; friable; 2 percent distinct clay films and 2 percent gray (10YR 6/1) silt coats; 10 percent medium distinct yellowish brown (10YR 5/8) masses of oxidized iron; very strongly acid; clear wavy boundary.

Cg—48 to 80 inches; light brownish gray (2.5Y 6/2) silty clay loam; massive; firm; 10 percent fine dark brown (10YR 3/3) iron-manganese concretions; 10 percent medium distinct yellowish brown (10YR 5/8) masses of oxidized iron; very strongly acid.

### **Range in Characteristics**

*Thickness of the solum:* 40 to more than 72 inches

*Depth to bedrock:* More than 60 inches

*A horizon:*

Color—hue of 10YR, value of 4 or 5, and chroma of 2

Texture—silt loam

Reaction—strongly acid or very strongly acid

*Eg horizon:*

Color—hue of 10YR, value of 6 or 7, and chroma of 1 or 2

Texture—silt loam or very fine sandy loam

Color of redoximorphic concentrations and depletions—shades of brown, yellow, or gray

Reaction—strongly acid or very strongly acid

*Btg horizon:*

Color—hue of 10YR, value of 6 or 7, and chroma of 1 or 2; or hue of 2.5YR, value of 6, and chroma of 2

Texture—silt loam or silty clay loam

Color of redoximorphic concentrations and depletions—shades of brown, yellow, or gray

Reaction—strongly acid or very strongly acid

*Cg horizon:*

Color—hue of 10YR, value of 6 or 7, and chroma of 1 or 2; or hue of 2.5Y, value of 6, and chroma of 2

Texture—silt loam or silty clay loam

Color of redoximorphic concentrations and depletions—shades of brown, yellow, or gray

Reaction—strongly acid or very strongly acid

## ***Angie Series***

*MLRA:* Western Coastal Plain

*Geomorphic setting:* Hills

*Position on hillslope:* Side slopes

*Parent material:* Loamy and clayey, marine deposits

*Drainage class:* Moderately well drained

*Saturated hydraulic conductivity class:* Slow

*Soil depth class:* Very deep

*Shrink-swell potential:* High

*Slope:* 1 to 8 percent

*Taxonomic classification:* Fine, mixed, semiactive, thermic Aquic Paleudults

### **Associated Soils**

The Angie series is commonly associated with Harleston, Rosalie, Sacul, Sawyer, and Warnock soils.

### **Typical Pedon**

Angie fine sandy loam, 1 to 8 percent slopes; in a wooded area; SW<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub> sec. 6, T. 19 S., R. 11 W.

A—0 to 5 inches; brown (10YR 5/3) fine sandy loam; weak fine granular structure; friable; many fine roots; strongly acid; clear smooth boundary.

E—5 to 12 inches; yellowish brown (10YR 5/4) fine sandy loam; weak fine granular structure; friable; many fine roots; strongly acid; clear smooth boundary.

Bt1—12 to 18 inches; yellowish brown (10YR 5/8) silty clay loam; weak medium subangular blocky structure; friable; many fine roots; 2 percent faint clay films on faces of pedis; 2 percent fine faint yellowish brown (10YR 5/4) masses of oxidized iron; strongly acid; gradual wavy boundary.



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- Bt2—18 to 27 inches; yellowish brown (10YR 5/6) silty clay loam; weak medium subangular blocky structure; friable; many fine roots; 2 percent faint clay films on faces of peds; 10 percent medium distinct brownish yellow (10YR 6/6) and 10 percent medium distinct yellowish red (5YR 5/6) masses of oxidized iron; strongly acid; gradual wavy boundary.
- Bt3—27 to 33 inches; brownish yellow (10YR 6/6) silty clay loam; moderate medium subangular blocky structure; friable; common fine roots; 2 percent faint clay films on faces of peds; 10 percent medium prominent yellowish red (5YR 5/8) masses of oxidized iron; 10 percent medium distinct light brownish gray (10YR 6/2) iron depletions; few soft red concretions; very strongly acid; gradual wavy boundary.
- Btg1—33 to 51 inches; gray (10YR 6/1) silty clay; moderate medium subangular blocky structure; firm; few fine roots; 2 percent faint clay films on faces of peds; 10 percent medium distinct brownish yellow (10YR 6/6) and 10 percent medium prominent red (2.5YR 5/8) masses of oxidized iron; few red and brown concretions; very strongly acid; gradual wavy boundary.
- Btg2—51 to 64 inches; gray (10YR 6/1) silty clay; moderate medium subangular blocky structure; firm; 2 percent faint clay films on faces of peds; 10 percent medium distinct brownish yellow (10YR 6/6) masses of oxidized iron; very strongly acid; gradual wavy boundary.
- BCg—64 to 80 inches; light brownish gray (2.5Y 6/2) silty clay loam; weak medium subangular blocky structure; firm; 2 percent fine faint yellowish brown (10YR 5/4) masses of oxidized iron; extremely acid.

### Range in Characteristics

*Thickness of the solum:* 60 to more than 72 inches

*Depth to bedrock:* More than 60 inches

#### *A horizon:*

Color—hue of 10YR, value of 4 or 5, and chroma of 3; or hue of 10YR, value of 4, and chroma of 2

Texture—fine sandy loam

Reaction—strongly acid or very strongly acid

#### *E horizon:*

Color—hue of 10YR, value of 4 to 6, and chroma of 3 or 4

Texture—very fine sandy loam, fine sandy loam, or loam

Reaction—strongly acid or very strongly acid

#### *Bt horizon:*

Color—hue of 10YR or 7.5YR, value of 5 or 6, and chroma of 4, 6, or 8

Texture—silty clay loam, silty clay, or clay

Color of redoximorphic concentrations and depletions—shades of brown, yellow, gray, and red

Reaction—strongly acid to extremely acid

#### *Btg horizon:*

Color—hue of 10YR, value of 5 to 7, and chroma of 1 or 2; or variegated in shades of gray, brown, yellow, and red

Texture—silty clay loam, silty clay, or clay

Color of redoximorphic concentrations and depletions—shades of red, brown, and yellow

Reaction—strongly acid to extremely acid

#### *BCg horizon:*

Color—hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 1 or 2; or variegated in shades of gray, brown, yellow, and red

Texture—silty clay loam, silty clay, or clay

Color of redoximorphic concentrations and depletions—shades of brown, red, and yellow

Reaction—strongly acid to extremely acid

## ***Bibb Series***

*MLRA:* Western Coastal Plain

*Geomorphic setting:* Flood plains

*Parent material:* Loamy and sandy alluvium

*Drainage class:* Poorly drained

*Saturated hydraulic conductivity class:* Moderate

*Soil depth class:* Very deep

*Shrink-swell potential:* Low

*Slope:* 0 to 1 percent

*Taxonomic classification:* Coarse-loamy, siliceous, active, acid, thermic Typic Fluvaquents

### **Associated Soils**

The Bibb series is commonly associated with Guyton, Harleston, and Smithton soils.

### **Typical Pedon**

Bibb fine sandy loam, 0 to 1 percent slopes, frequently flooded; in a wooded area; SE<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec. 2, T. 18 S., R. 18 W.

A—0 to 5 inches; brown (10YR 5/3) fine sandy loam; weak fine granular structure; very friable; common fine and common medium roots; very strongly acid; gradual smooth boundary.

Ag—5 to 10 inches; gray (10YR 6/1) fine sandy loam; 10 percent medium faint dark grayish brown (10YR 4/2) mottles; weak fine granular structure; very friable; common fine and common medium roots; very strongly acid; gradual smooth boundary.

Cg1—10 to 35 inches; gray (10YR 6/1) sandy loam; massive; friable; few fine and few medium roots; 5 percent medium distinct strong brown (7.5YR 5/6) masses of oxidized iron; common thin strata of silt loam; very strongly acid; clear wavy boundary.

Cg2—35 to 80 inches; gray (10YR 5/1) sandy loam; massive; friable; 10 percent medium distinct yellowish brown (10YR 5/6) masses of oxidized iron; common thin strata of silt loam; very strongly acid.

### **Range in Characteristics**

*Depth to bedrock:* More than 60 inches

#### *A horizon:*

Color—hue of 10YR, value of 3 to 5, and chroma of 2 or 3

Texture—fine sandy loam

Reaction—strongly acid or very strongly acid

#### *Ag horizon:*

Color—hue of 10YR, value of 5 to 7, and chroma of 1 or 2

Texture—fine sandy loam or sandy loam

Color of redoximorphic concentrations—shades of brown and yellow

Reaction—strongly acid or very strongly acid

#### *Cg horizon:*

Color—hue of 10YR or 2.5Y, value of 6 or 7, and chroma of 2 or less; or hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 1

Texture—loamy sand, loamy fine sand, sandy loam, fine sandy loam, loam, or silt loam; stratified  
Color of redoximorphic concentrations—shades of yellow and brown  
Reaction—strongly acid or very strongly acid

## ***Briley Series***

*MLRA:* Western Coastal Plain

*Geomorphic setting:* Hills

*Position on hillslope:* Side slopes, crests

*Parent material:* Sandy and loamy, marine deposits

*Drainage class:* Well drained

*Saturated hydraulic conductivity class:* Moderate

*Soil depth class:* Very deep

*Shrink-swell potential:* Low

*Slope:* 1 to 8 percent

*Taxonomic classification:* Loamy, siliceous, semiactive, thermic Arenic Paleudults

### **Associated Soils**

The Briley series is commonly associated with Darden, Rosalie, Ruston, Smithdale, and Warnock soils.

### **Typical Pedon**

Briley loamy fine sand, 1 to 8 percent slopes; in a wooded area; SW<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> sec. 1, T. 17 S., R. 15 W.

A—0 to 12 inches; brown (10YR 4/3) loamy fine sand; weak fine granular structure; very friable; many fine roots; slightly acid; clear smooth boundary.

E—12 to 21 inches; pale brown (10YR 6/3) loamy fine sand; weak fine granular structure; very friable; many fine roots; strongly acid; clear smooth boundary.

Bt1—21 to 45 inches; red (2.5YR 4/6) sandy clay loam; weak medium subangular blocky structure; friable; few fine roots; 2 percent faint clay films on faces of peds; strongly acid; gradual wavy boundary.

Bt2—45 to 80 inches; red (2.5YR 4/8) sandy clay loam; moderate medium subangular blocky structure; friable; 2 percent faint clay films on faces of peds; few pockets of clean sand grains; very strongly acid.

### **Range in Characteristics**

*Thickness of the solum:* 60 to more than 72 inches

*Depth to bedrock:* More than 60 inches

#### *A horizon:*

Color—hue of 10YR, value of 4 or 5, and chroma of 3 or 4

Texture—loamy fine sand

Reaction—strongly acid to slightly acid

#### *E horizon:*

Color—hue of 10YR, value of 5 or 6, and chroma of 3 or 4

Texture—loamy fine sand

Reaction—strongly acid to slightly acid

#### *Bt horizon:*

Color—hue of 5YR or 2.5YR, value of 4 or 5, and chroma of 6 or 8

Texture—sandy clay loam or loam

Redoximorphic concentrations and depletions—pockets or streaks of clean sand grains in the lower part; shades of red, brown, or yellow in the upper part in some pedons  
Reaction—very strongly acid or strongly acid

## ***Darden Series***

*MLRA:* Western Coastal Plain  
*Geomorphic setting:* Hills  
*Parent material:* Sandy, marine deposits  
*Drainage class:* Excessively drained  
*Saturated hydraulic conductivity class:* Rapid  
*Soil depth class:* Very deep  
*Shrink-swell potential:* Low  
*Slope:* 1 to 15 percent  
*Taxonomic classification:* Thermic, coated Typic Quartzipsamments

### **Associated Soils**

The Darden series is commonly associated with Briley, Rosalie, Sacul, Smithdale, and Warnock soils.

### **Typical Pedon**

Darden loamy fine sand, 1 to 8 percent slopes; in a wooded area; SE<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec. 9, T. 17 S., R. 14 W. (fig. 8)

A—0 to 11 inches; dark brown (10YR 3/3) loamy fine sand; weak fine granular structure; very friable; many fine roots; strongly acid; clear smooth boundary.  
Bw1—11 to 25 inches; yellowish brown (10YR 5/6) loamy fine sand; single grain; loose; few fine roots; very strongly acid; gradual smooth boundary.  
Bw2—25 to 50 inches; strong brown (7.5YR 5/8) loamy fine sand; single grain; loose; few fine roots; very strongly acid; gradual smooth boundary.  
Bw3—50 to 80 inches; strong brown (7.5YR 5/6) loamy sand; single grain; loose; few pockets of clean sand; very strongly acid.

### **Range in Characteristics**

*Thickness of the solum:* More than 80 inches  
*Depth to bedrock:* More than 60 inches

#### *A horizon:*

Color—hue of 10YR, value of 3 to 5, and chroma of 3 or 4; or hue of 7.5YR, value of 4, and chroma of 4  
Texture—loamy fine sand  
Reaction—very strongly acid or strongly acid

#### *Bw horizon:*

Color—hue of 10YR, value of 5 or 6, and chroma of 4, 6, or 8; or hue of 7.5YR, value of 5, and chroma of 4, 6, or 8  
Texture—dominantly loamy fine sand, but some pedons have strata of fine sand or loamy sand.  
Reaction—very strongly acid or strongly acid

## ***Gurdon Series***

*MLRA:* Western Coastal Plain  
*Geomorphic setting:* Stream terraces  
*Parent material:* Silty alluvium



Figure 8.—Typical profile of Darden loamy fine sand. The scale is in feet.



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*Drainage class:* Somewhat poorly drained

*Saturated hydraulic conductivity class:* Moderately slow

*Soil depth class:* Very deep

*Shrink-swell potential:* Low

*Slope:* 0 to 3 percent

*Taxonomic classification:* Coarse-silty, siliceous, semiactive, thermic Aquic Paleudults

### Associated Soils

The Gurdon series is commonly associated with Amy, Smithton, and Una soils.

### Typical Pedon

Gurdon silt loam, 0 to 3 percent slopes, rarely flooded; in a wooded area; NE<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub> sec. 13, T. 18 S., R. 11 W.

- A—0 to 3 inches; grayish brown (10YR 5/2) silt loam; weak fine granular structure; very friable; many fine and many medium roots; very strongly acid; clear smooth boundary.
- E—3 to 10 inches; light yellowish brown (10YR 6/4) silt loam; weak fine granular structure; very friable; many fine and many medium roots; 2 percent fine faint brownish yellow (10YR 6/6) and 2 percent fine faint pale brown (10YR 6/3) masses of oxidized iron; very strongly acid; clear smooth boundary.
- Bt—10 to 21 inches; brownish yellow (10YR 6/6) silt loam; weak medium subangular blocky structure; friable; common fine and common medium roots; 25 percent faint clay films on faces of peds; 10 percent medium distinct light yellowish brown (10YR 6/4) masses of oxidized iron; 10 percent medium distinct light brownish gray (10YR 6/2) iron depletions; very strongly acid; gradual smooth boundary.
- Btx—21 to 35 inches; yellowish brown (10YR 5/8) silt loam; weak coarse prismatic, weak medium subangular blocky, and weak fine subangular blocky structure; firm; few fine and few medium roots; 25 percent faint clay films on faces of peds; 10 percent medium distinct gray (10YR 6/1) iron depletions; 10 percent medium distinct brownish yellow (10YR 6/6) masses of oxidized iron; 15 percent brittle and compact; very strongly acid; gradual smooth boundary.
- B<sup>1</sup>t1—35 to 47 inches; brownish yellow (10YR 6/6) silt loam; weak medium subangular blocky structure; friable; few fine roots; 2 percent faint clay films on faces of peds; 2 percent faint silt coats on faces of peds; 10 percent medium distinct light gray (10YR 7/1) iron depletions; 10 percent medium distinct yellowish brown (10YR 5/8) masses of oxidized iron; very strongly acid; clear wavy boundary.
- B<sup>1</sup>t2—47 to 63 inches; gray (10YR 6/1), yellowish brown (10YR 5/8), and brownish yellow (10YR 6/6) silty clay loam; moderate medium subangular blocky structure; friable; 2 percent faint clay films on faces of peds; very strongly acid; gradual smooth boundary.
- Btg—63 to 80 inches; gray (10YR 6/1) and yellowish brown (10YR 5/8 and 5/6) silty clay loam; moderate medium subangular blocky structure; friable; 2 percent faint clay films on faces of peds; 2 percent gray (10YR 6/1) silt coats on faces of peds; very strongly acid.

### Range in Characteristics

*Thickness of the solum:* 60 to more than 72 inches

*Depth to bedrock:* More than 60 inches

*A horizon:*

Color—hue of 10YR, value of 4 or 5, and chroma of 2 or 3

Texture—silt loam

Reaction—strongly acid or very strongly acid



*E horizon:*

Color—hue of 10YR, value of 5 or 6, and chroma of 3 or 4

Texture—silt loam or very fine sandy loam

Color of redoximorphic concentrations and depletions—shades of brown, yellow, and gray

Reaction—strongly acid or very strongly acid

*Bt horizon:*

Color—hue of 10YR, value of 5 or 6, and chroma of 4, 6, or 8

Texture—silt loam, loam, or silty clay loam

Color of redoximorphic concentrations and depletions—shades of brown, yellow, and gray

Reaction—strongly acid or very strongly acid

*Btx horizon:*

Color—hue of 10YR, value of 5 or 6, and chroma of 4, 6, or 8; or variegated in shades of brown, yellow, and gray

Texture—silt loam, loam, or silty clay loam

Color of redoximorphic concentrations and depletions—shades of brown, yellow, and gray

Reaction—strongly acid or very strongly acid

*B<sub>t</sub> horizon:*

Color—hue of 10YR, value of 5 or 6, and chroma of 4 or 6; or variegated in shades of brown, yellow, and gray

Texture—silt loam, loam, or silty clay loam

Color of redoximorphic concentrations and depletions—shades of brown, yellow, and gray

Reaction—strongly acid or very strongly acid

*Btg horizon:*

Color—hue of 10YR, value of 5 or 6, and chroma of 1 or 2; or variegated in shades of brown, yellow, and gray

Texture—silt loam or silty clay loam

Color of redoximorphic concentrations and depletions—shades of brown, yellow, and gray

Reaction—strongly acid or very strongly acid

## ***Guyton Series***

*MLRA:* Western Coastal Plain

*Geomorphic setting:* Flood plains

*Parent material:* Loamy alluvium

*Drainage class:* Poorly drained

*Saturated hydraulic conductivity class:* Slow

*Soil depth class:* Very deep

*Shrink-swell potential:* Moderate

*Slope:* 0 to 1 percent

*Taxonomic classification:* Fine-silty, siliceous, active, thermic Typic Glossaqualfs

### **Associated Soils**

The Guyton series is commonly associated with Amy, Bibb, Smithton, and Una soils and Aqueuts.

### **Typical Pedon**

Guyton silt loam, 0 to 1 percent slopes, frequently flooded; in a wooded area of intermixed conifers and hardwoods; NE<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec. 1, T. 16 S., R. 18 W.

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- A—0 to 5 inches; brown (10YR 4/3) silt loam; weak fine granular structure; friable; strongly acid; clear smooth boundary.
- Eg—5 to 13 inches; light brownish gray (10YR 6/2) silt loam; weak medium subangular blocky structure; friable; 10 percent medium distinct dark yellowish brown (10YR 4/4) masses of oxidized iron; very strongly acid; clear irregular boundary.
- B/E—13 to 26 inches; 15 percent gray (10YR 6/1 and 5/1) silt loam; weak medium subangular blocky and moderate medium subangular blocky structure; friable; 2 percent faint clay films on faces of peds; 10 percent medium distinct dark yellowish brown (10YR 4/4) masses of oxidized iron; very strongly acid; gradual wavy boundary.
- Btg1—26 to 36 inches; gray (10YR 6/1) silt loam; moderate medium subangular blocky structure; friable; 25 percent gray (10YR 6/1) silt coats on faces of peds; 2 percent faint clay films on faces of peds; 10 percent medium distinct strong brown (7.5YR 5/6) and 10 percent medium distinct yellowish brown (10YR 5/6) masses of oxidized iron; very strongly acid; gradual wavy boundary.
- Btg2—36 to 60 inches; gray (10YR 6/1) silt loam; moderate medium subangular blocky structure; friable; 25 percent gray (10YR 6/1) silt coats on faces of peds; 2 percent faint clay films on faces of peds; 15 percent medium distinct yellowish brown (10YR 5/6) masses of oxidized iron; very strongly acid; gradual wavy boundary.
- Cg—60 to 80 inches; gray (10YR 5/1) silty clay loam; massive; firm; 2 percent distinct yellowish brown (10YR 5/6) and 2 percent distinct strong brown (7.5YR 5/6) masses of oxidized iron; strongly acid.

### Range in Characteristics

*Thickness of the solum:* 50 to more than 72 inches

*Depth to bedrock:* More than 60 inches

#### *A horizon:*

Color—hue of 10YR, value of 4 or 5, and chroma of 2 or 3

Texture—silt loam

Reaction—strongly acid or very strongly acid

#### *Eg horizon:*

Color—hue of 10YR, value of 5 or 6, and chroma of 1 or 2

Texture—silt loam

Color of redoximorphic concentrations and depletions—shades of brown, yellow, and gray

Reaction—strongly acid or very strongly acid

#### *B/E horizon:*

Color—hue of 10YR, value of 5 or 6, and chroma of 1 or 2

Texture—silt loam

Color of redoximorphic concentrations and depletions—shades of brown, yellow, and gray

Reaction—strongly acid or very strongly acid

#### *Btg horizon:*

Color—hue of 10YR, value of 5 or 6, and chroma of 1 or 2; or hue of 2.5Y, value of 5 or 6, and chroma of 2

Texture—silt loam or silty clay loam

Color of redoximorphic concentrations and depletions—shades of brown, yellow, and gray

Reaction—strongly acid or very strongly acid

*Cg horizon:*

- Color—hue of 10YR, value of 5 or 6, and chroma of 1 or 2; or hue of 2.5Y, value of 5 or 6, and chroma of 2
- Texture—silt loam or silty clay loam
- Color of redoximorphic concentrations and depletions—shades of brown, yellow, and gray
- Reaction—strongly acid to moderately alkaline

**Harleston Series**

*MLRA:* Western Coastal Plain

*Geomorphic setting:* Hills

*Parent material:* Loamy, marine deposits

*Drainage class:* Moderately well drained

*Saturated hydraulic conductivity class:* Moderate

*Soil depth class:* Very deep

*Shrink-swell potential:* Low

*Slope:* 1 to 8 percent

*Taxonomic classification:* Coarse-loamy, siliceous, semiactive, thermic Aquic Paleudults

**Associated Soils**

The Harleston series is commonly associated with Amy, Angie, Bibb, Sacul, Sawyer, Smithton, and Warnock soils.

**Typical Pedon**

Harleston fine sandy loam, 1 to 8 percent slopes; in a wooded area; SE<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> sec. 10, T. 19 S., R. 17 W.

- A—0 to 5 inches; brown (10YR 4/3) fine sandy loam; weak fine granular structure; very friable; many fine roots; strongly acid; clear smooth boundary.
- E—5 to 9 inches; yellowish brown (10YR 5/4) fine sandy loam; weak fine granular structure; very friable; many fine roots; very strongly acid; gradual wavy boundary.
- Bt1—9 to 24 inches; yellowish brown (10YR 5/6) loam; moderate medium subangular blocky structure; friable; common fine roots; sand grains coated and bridged with clay; very strongly acid; gradual wavy boundary.
- Bt2—24 to 48 inches; yellowish brown (10YR 5/8) loam; moderate medium subangular blocky structure; friable; few fine roots; 2 percent faint clay films on faces of peds; 10 percent medium distinct reddish yellow (7.5YR 6/8), 10 percent medium distinct red (2.5YR 4/8), and 10 percent coarse distinct reddish yellow (7.5YR 6/8) masses of oxidized iron; 10 percent medium distinct gray (10YR 6/1) iron depletions; very strongly acid; gradual wavy boundary.
- Bt3—48 to 80 inches; yellowish brown (10YR 5/6) sandy clay loam; moderate medium subangular blocky structure; friable; 2 percent faint clay films on faces of peds; 10 percent medium distinct gray (10YR 6/1) iron depletions; very strongly acid.

**Range in Characteristics**

*Thickness of the solum:* 60 to more than 72 inches

*Depth to bedrock:* More than 60 inches

*A horizon:*

- Color—hue of 10YR, value of 4 or 5, and chroma of 2 or 3
- Texture—fine sandy loam
- Reaction—strongly acid or very strongly acid

*E horizon:*

Color—hue of 10YR, value of 5 or 6, and chroma of 3 or 4

Texture—fine sandy loam or loam

Reaction—strongly acid or very strongly acid

*Bt1 horizon:*

Color—hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 4, 6, or 8

Texture—sandy loam or loam

Reaction—strongly acid or very strongly acid

*Bt2 horizon:*

Color—hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 4, 6, or 8

Texture—sandy loam or loam

Color of redoximorphic concentrations and depletions—shades of brown, yellow, and gray

Reaction—strongly acid or very strongly acid

*Bt3 horizon:*

Color—hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 4, 6, or 8

Texture—loam or sandy clay loam

Color of redoximorphic concentrations and depletions—shades of gray, brown, or red

Reaction—strongly acid or very strongly acid

## ***Rosalie Series***

*MLRA:* Western Coastal Plain

*Geomorphic setting:* Hills

*Parent material:* Loamy, marine deposits

*Drainage class:* Well drained

*Saturated hydraulic conductivity class:* Moderate

*Soil depth class:* Very deep

*Shrink-swell potential:* Low

*Slope:* 1 to 8 percent

*Taxonomic classification:* Loamy, siliceous, active, thermic Arenic Paleudults

### **Associated Soils**

The Rosalie series is commonly associated with Angie, Briley, Darden, Ruston, Smithdale, and Warnock soils.

### **Typical Pedon**

Rosalie loamy fine sand in an area of Rosalie-Warnock complex, 1 to 8 percent slopes; in a wooded area; SE<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub> sec. 22, T. 16 S., R. 18 W. (fig. 9)

A—0 to 8 inches; brown (10YR 5/3) loamy fine sand; weak fine granular structure; very friable; common fine and common medium roots; strongly acid; clear smooth boundary.

E1—8 to 23 inches; pale brown (10YR 6/3) loamy fine sand; weak fine granular structure; very friable; common fine and common medium roots; strongly acid; clear smooth boundary.

E2—23 to 32 inches; light yellowish brown (10YR 6/4) loamy fine sand; weak fine granular structure; very friable; common fine roots; very strongly acid; clear wavy boundary.

B/E—32 to 43 inches; 90 percent yellowish brown (10YR 5/6) sandy clay loam (B); moderate medium subangular blocky; friable; few fine roots; 2 percent faint clay films on faces of peds; 5 percent light yellowish brown (10YR 6/4) and 5 percent



Figure 9.—Typical profile of Rosalie loamy fine sand in an area of Rosalie-Warnock complex, 1 to 8 percent slopes. The scale is in feet.

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very pale brown (10YR 7/3) loamy sand (E); structureless (massive); friable; few fine roots; 2 percent medium prominent red (2.5YR 4/6) masses of oxidized iron; 2 percent medium distinct light brownish gray (10YR 6/2) iron depletions; very strongly acid; gradual wavy boundary.

Bt—43 to 60 inches; brownish yellow (10YR 6/6), red (2.5YR 4/6), and gray (10YR 6/1) sandy clay loam; moderate medium subangular blocky structure; friable; 2 percent faint clay films on faces of peds; very strongly acid; clear wavy boundary.

Btg—60 to 80 inches; gray (10YR 6/1) sandy clay loam; moderate medium subangular blocky structure; friable; 2 percent faint clay films on faces of peds; 10 percent medium distinct strong brown (7.5YR 5/8) and 10 percent medium prominent red (2.5YR 4/6) masses of oxidized iron; very strongly acid.

### Range in Characteristics

*Thickness of the solum:* 60 to more than 72 inches

*Depth to bedrock:* More than 60 inches

#### *A horizon:*

Color—hue of 10YR, value of 4 or 5, and chroma of 3 or 4

Texture—loamy fine sand

Reaction—very strongly acid or strongly acid

#### *E horizon:*

Color—hue of 10YR, value of 5 to 7, and chroma of 3 or 4

Texture—loamy fine sand or loamy sand

Reaction—very strongly acid or strongly acid

#### *B/E horizon:*

Color—(B part) hue of 10YR or 7.5YR, value of 5 or 6, and chroma of 4, 6, or 8;

(E part) hue of 10YR, value of 5 to 7, and chroma of 3 or 4

Texture—(B part) sandy clay loam, loam, or clay loam; (E part) loamy fine sand or loamy sand

Color of redoximorphic concentrations and depletions—shades of brown, yellow, red, or gray

Reaction—extremely acid to strongly acid

#### *Bt horizon:*

Color—variegated in shades of brown, gray, and red

Texture—sandy clay loam or clay loam

Reaction—extremely acid to strongly acid

#### *Btg horizon:*

Color—hue of 10YR, value of 5 or 6, and chroma of 1 or 2

Texture—sandy clay loam or clay loam

Color of redoximorphic concentrations and depletions—shades of brown, yellow, or red

Reaction—extremely acid to strongly acid

## ***Ruston Series***

*MLRA:* Western Coastal Plain

*Geomorphic setting:* Hills

*Parent material:* Loamy, marine deposits

*Drainage class:* Well drained

*Saturated hydraulic conductivity class:* Moderate

*Soil depth class:* Very deep

*Shrink-swell potential:* Low



*Slope:* 1 to 3 percent

*Taxonomic classification:* Fine-loamy, siliceous, semiactive, thermic Typic Paleudults

### **Associated Soils**

The Ruston series is commonly associated with Briley, Rosalie, Sacul, Smithdale, and Warnock soils.

### **Typical Pedon**

Ruston fine sandy loam, 1 to 3 percent slopes; in a wooded area; NW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> sec. 16, T. 17 S., R. 14 W.

A—0 to 6 inches; dark grayish brown (10YR 4/2) fine sandy loam; weak fine granular structure; very friable; many fine and many medium roots; strongly acid; clear smooth boundary.

E—6 to 15 inches; pale brown (10YR 6/3) fine sandy loam; weak fine granular structure; very friable; many fine and many medium roots; strongly acid; clear smooth boundary.

Bt—15 to 35 inches; red (2.5YR 4/6) sandy clay loam; moderate medium subangular blocky structure; friable; common fine and common medium roots; 2 percent faint clay films on faces of peds; very strongly acid; clear wavy boundary.

B/E—35 to 55 inches; 60 percent yellowish red (5YR 5/6) and 40 percent light yellowish brown (10YR 6/4) fine sandy loam; weak coarse subangular blocky structure; friable; few fine roots; 2 percent faint clay films on faces of peds; very strongly acid; gradual wavy boundary.

B't—55 to 80 inches; red (2.5YR 4/6) sandy clay loam; moderate medium subangular blocky structure; firm; few fine roots; 2 percent faint clay films on faces of peds; 10 percent medium distinct gray (10YR 6/1) iron depletions; slightly brittle; very strongly acid.

### **Range in Characteristics**

*Thickness of the solum:* 60 to more than 72 inches

*Depth to bedrock:* More than 60 inches

#### *A horizon:*

Color—hue of 10YR, value of 4, and chroma of 2 or 3; or hue of 10YR, value of 5, and chroma of 3

Texture—fine sandy loam

Reaction—moderately acid to very strongly acid

#### *E horizon:*

Color—hue of 10YR, value of 5 or 6, and chroma of 3 or 4

Texture—fine sandy loam

Reaction—moderately acid to very strongly acid

#### *Bt horizon:*

Color—hue of 5YR or 2.5YR, value of 4 or 5, and chroma of 4, 6, or 8

Texture—sandy clay loam, clay loam, loam, or fine sandy loam

Reaction—strongly acid or very strongly acid

#### *B/E horizon:*

Color—(B part) hue of 5YR or 2.5YR, value of 4 or 5, and chroma of 4, 6, or 8; (E part) hue of 10YR, value of 5 or 6, and chroma of 3 or 4

Texture—(B part) sandy clay loam, clay loam, loam, or fine sandy loam; (E part) fine sandy loam or sandy loam

Reaction—strongly acid or very strongly acid

#### *B't horizon:*

Color—hue of 5YR or 2.5YR, value of 4 or 5, and chroma of 4, 6, or 8

Texture—sandy clay loam, clay loam, loam, or fine sandy loam

Color of redoximorphic concentrations and depletions—shades of brown, yellow, and gray

Reaction—strongly acid or very strongly acid

## ***Sacul Series***

*MLRA:* Western Coastal Plain

*Geomorphic setting:* Hills

*Position on hillslope:* Shoulders, backslopes, footslopes, and side slopes

*Parent material:* Loamy and clayey, marine deposits

*Drainage class:* Moderately well drained

*Saturated hydraulic conductivity class:* Slow

*Soil depth class:* Very deep

*Shrink-swell potential:* High

*Slope:* 1 to 30 percent

*Taxonomic classification:* Fine, mixed, active, thermic Aquic Hapludults

### **Associated Soils**

The Sacul series is commonly associated with Angie, Darden, Harleston, Ruston, Sawyer, Smithdale, Trebloc, and Warnock soils.

### **Typical Pedon**

Sacul fine sandy loam, 1 to 8 percent slopes, in a wooded area of intermixed conifers and hardwoods; SE<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> sec. 36, T. 17 S., R. 12 W. (fig. 10)

A—0 to 5 inches; dark grayish brown (10YR 4/2) fine sandy loam; weak fine granular structure; very friable; common fine roots; moderately acid; clear smooth boundary.

E—5 to 12 inches; brown (10YR 5/3) fine sandy loam; weak fine granular structure; friable; many fine roots; strongly acid; clear smooth boundary.

Bt1—12 to 23 inches; red (2.5YR 4/6) clay; moderate medium subangular blocky structure; firm; common medium roots; 50 percent distinct clay films on faces of peds; very strongly acid; clear smooth boundary.

Bt2—23 to 31 inches; red (2.5YR 4/8) clay; moderate medium subangular blocky structure; firm; common medium roots; 50 percent distinct clay films on faces of peds; 10 percent medium prominent light brownish gray (10YR 6/2) iron depletions; very strongly acid; clear smooth boundary.

Bt3—31 to 37 inches; red (2.5YR 5/8), yellowish brown (10YR 5/6), and light brownish gray (10YR 6/2) clay loam; moderate medium subangular blocky structure; firm; few fine roots; 2 percent faint clay films on faces of peds; very strongly acid; clear smooth boundary.

Btg—37 to 50 inches; light brownish gray (10YR 6/2) clay loam; weak medium subangular blocky structure; friable; 2 percent faint clay films on faces of peds; 10 percent medium distinct yellowish brown (10YR 5/6) and 10 percent medium prominent red (2.5YR 4/8) masses of oxidized iron; very strongly acid; clear smooth boundary.

BCg—50 to 61 inches; light brownish gray (10YR 6/2) clay loam; weak medium subangular blocky structure; friable; 10 percent medium prominent red (2.5YR 4/8) masses of oxidized iron; very strongly acid; clear smooth boundary.

Cg—61 to 80 inches; light brownish gray (10YR 6/2) clay loam; massive; friable; 10 percent medium prominent red (2.5YR 4/8) and 10 percent medium distinct yellowish brown (10YR 5/6) masses of oxidized iron; very strongly acid.



Figure 10.—Typical profile of Sacul fine sandy loam. The scale is in feet.

**Range in Characteristics**

*Thickness of the solum:* 50 to more than 72 inches

*Depth to bedrock:* More than 60 inches

*A horizon:*

Color—hue of 10YR, value of 3 or 4, and chroma of 2 or 3

Texture—fine sandy loam

Reaction—moderately acid or strongly acid

*E horizon:*

Color—hue of 10YR, value of 5 or 6, and chroma of 3 or 4

Texture—fine sandy loam

Reaction—moderately acid or strongly acid

*Bt1 horizon:*

Color—hue of 5YR, value of 4, and chroma of 6; hue of 5YR, value of 5, and chroma of 6 or 8; or hue of 2.5YR, value of 4 or 5, and chroma of 6 or 8

Texture—clay, silty clay, or sandy clay

Reaction—strongly acid or very strongly acid

*Bt2 horizon:*

Color—hue of 5YR, value of 4, and chroma of 6; hue of 5YR, value of 5, and chroma of 6 or 8; or hue of 2.5YR, value of 4 or 5, and chroma of 6 or 8

Texture—clay, silty clay, or sandy clay

Color of redoximorphic concentrations and depletions—shades of brown and gray

Reaction—strongly acid or very strongly acid

*Bt3 horizon:*

Color—hue of 5YR, value of 4, and chroma of 6; hue of 5YR, value of 5, and chroma of 6 or 8; hue of 2.5YR, value of 4 or 5, and chroma of 6 or 8; or variegated in shades of red, brown, and gray

Texture—silty clay, clay loam, or sandy clay

Color of redoximorphic concentrations and depletions—shades of red, brown, and gray

Reaction—strongly acid or very strongly acid

*Btg horizon:*

Color—hue of 10YR, value of 5 or 6, and chroma of 1 or 2; or variegated in shades of red, brown, and gray

Texture—silty clay loam, clay loam, or sandy clay loam

Color of redoximorphic concentrations and depletions—shades of red, gray, and brown

Reaction—strongly acid or very strongly acid

*BC horizon:*

Color—hue of 10YR, value of 5 or 6, and chroma of 1 or 2; or variegated in shades of red, brown, and gray

Texture—silty clay loam, clay loam, sandy clay loam, loam, or very fine sandy loam

Color of redoximorphic concentrations and depletions—shades of red, gray, and brown

Reaction—strongly acid or very strongly acid

*C horizon:*

Color—hue of 10YR, value of 5 or 6, and chroma of 1 or 2; or variegated in shades of red, brown, and gray

Texture—silty clay loam, clay loam, sandy clay loam, loam, or very fine sandy loam

Color of redoximorphic concentrations and depletions—shades of red, gray, and brown

Reaction—strongly acid or very strongly acid

## ***Sawyer Series***

*MLRA:* Western Coastal Plain

*Geomorphic setting:* Hills

*Parent material:* Loamy and clayey, marine deposits

*Drainage class:* Moderately well drained

*Saturated hydraulic conductivity class:* Slow

*Soil depth class:* Very deep

*Shrink-swell potential:* High

*Slope:* 1 to 15 percent

*Taxonomic classification:* Fine-silty, siliceous, semiactive, thermic Aquic Paleudults

### **Associated Soils**

The Sawyer series is commonly associated with Angie, Harleston, Sacul, Smithdale, Trebloc, and Warnock soils.

### **Typical Pedon**

Sawyer very fine sandy loam, 1 to 8 percent slopes; in a wooded area; SW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub> sec. 33, T. 14 S., R. 19 W.

A—0 to 8 inches; dark grayish brown (10YR 4/2) very fine sandy loam; weak fine granular structure; very friable; many fine and many medium roots; strongly acid; clear smooth boundary.

E—8 to 13 inches; light yellowish brown (10YR 6/4) fine sandy loam; weak fine granular structure; very friable; many fine and many medium roots; very strongly acid; clear smooth boundary.

Bt1—13 to 23 inches; yellowish brown (10YR 5/6) silty clay loam; moderate medium subangular blocky structure; friable; few fine roots; 5 percent faint clay films on faces of peds; very strongly acid; clear smooth boundary.

Bt2—23 to 31 inches; yellowish brown (10YR 5/6) silty clay loam; moderate medium subangular blocky structure; friable; few fine roots; 5 percent faint clay films on faces of peds; 10 percent medium distinct strong brown (7.5YR 5/8) and 10 percent medium prominent yellowish red (5YR 5/6) masses of oxidized iron; 10 percent medium distinct gray (10YR 6/1) iron depletions; very strongly acid; gradual smooth boundary.

Bt3—31 to 38 inches; yellowish brown (10YR 5/6) silty clay; moderate medium subangular blocky structure; firm; few fine roots; 50 percent distinct clay films on faces of peds; 10 percent medium prominent dark red (2.5YR 3/6) and 10 percent medium distinct strong brown (7.5YR 5/8) masses of oxidized iron; 10 percent medium distinct gray (10YR 6/1) iron depletions; very strongly acid; gradual smooth boundary.

Bt4—38 to 56 inches; mottled gray (10YR 6/1), strong brown (7.5YR 5/6), yellowish brown (10YR 5/6), and red (2.5YR 4/6) silty clay; moderate medium subangular blocky structure; firm; few fine roots; 50 percent distinct clay films on faces of peds; very strongly acid; gradual smooth boundary.

Bt5—56 to 66 inches; mottled gray (10YR 6/1), strong brown (7.5YR 5/8), yellowish brown (10YR 5/6), and red (2.5YR 4/8) silty clay; moderate medium subangular blocky structure; firm; 2 percent distinct clay films on faces of peds; very strongly acid; clear smooth boundary.



BCg—66 to 80 inches; light brownish gray (2.5Y 6/2) silty clay; moderate medium subangular blocky structure; firm; 10 percent medium distinct yellowish brown (10YR 5/6) masses of oxidized iron; extremely acid.

**Range in Characteristics**

*Thickness of the solum:* 60 to more than 72 inches

*Depth to bedrock:* More than 60 inches

*A horizon:*

Color—hue of 10YR, value of 4, and chroma of 2 or 3; or hue of 10YR, value of 5, and chroma of 3

Texture—very fine sandy loam

Reaction—strongly acid or very strongly acid

*E horizon:*

Color—hue of 10YR, value of 5 or 6, and chroma of 3 or 4

Texture—fine sandy loam or loam

Reaction—strongly acid or very strongly acid

*Bt1 horizon:*

Color—hue of 10YR or 7.5YR, value of 5, and chroma of 4, 6, or 8

Texture—silt loam, loam, or silty clay loam

Color of redoximorphic concentrations and depletions—shades of brown

Reaction—strongly acid to extremely acid

*Bt2 horizon:*

Color—hue of 10YR or 7.5YR, value of 5, and chroma of 4, 6, or 8

Texture—silt loam, loam, or silty clay loam

Color of redoximorphic concentrations and depletions—shades of gray, brown, and red

Reaction—strongly acid to extremely acid

*Bt3 horizon:*

Color—hue of 10YR or 7.5YR, value of 5, and chroma of 4, 6, or 8

Texture—silty clay loam, silty clay, or clay

Color of redoximorphic concentrations and depletions—shades of gray, brown, and red

Reaction—strongly acid to extremely acid

*Bt4 horizon:*

Color—hue of 10YR or 7.5YR, value of 5, and chroma of 4, 6, or 8; or variegated in shades of gray, brown, and red

Texture—silty clay loam, silty clay, or clay

Color of redoximorphic concentrations and depletions—shades of gray, brown, and red

Reaction—strongly acid to extremely acid

*Bt5 horizon:*

Color—hue of 10YR or 7.5YR, value of 5, and chroma of 4, 6, or 8; or variegated in shades of gray, red, and brown

Texture—silty clay loam, silty clay, or clay

Color of redoximorphic concentrations and depletions—shades of gray, brown, and red

Reaction—strongly acid to extremely acid

*BCg horizon:*

Color—hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 1 or 2

Texture—silty clay loam, silty clay, or clay



Color of redoximorphic concentrations and depletions—shades of red and brown  
Reaction—strongly acid to extremely acid

## ***Smithdale Series***

*MLRA:* Western Coastal Plain

*Geomorphic setting:* Hills

*Parent material:* Loamy, marine deposits

*Drainage class:* Well drained

*Saturated hydraulic conductivity class:* Moderate

*Soil depth class:* Very deep

*Shrink-swell potential:* Low

*Slope:* 1 to 30 percent

*Taxonomic classification:* Fine-loamy, siliceous, subactive, thermic Typic Hapludults

### **Associated Soils**

The Smithdale series is commonly associated with Briley, Darden, Rosalie, Ruston, Sacul, Sawyer, and Warnock soils.

### **Typical Pedon**

Smithdale fine sandy loam, 3 to 8 percent slopes; in a wooded area; NW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub> sec. 35, T. 19 S., R. 15 W. (fig. 11)

A—0 to 6 inches; brown (10YR 4/3) fine sandy loam; weak fine granular structure; very friable; many fine and many medium roots; strongly acid; clear smooth boundary.

BA—6 to 10 inches; yellowish red (5YR 4/6) fine sandy loam; weak medium subangular blocky structure; very friable; strongly acid; clear smooth boundary.

Bt1—10 to 36 inches; red (2.5YR 4/6) sandy clay loam; moderate medium subangular blocky structure; friable; 2 percent faint clay films on faces of peds; strongly acid; gradual smooth boundary.

Bt2—36 to 50 inches; red (2.5YR 4/8) sandy loam; moderate medium subangular blocky structure; friable; few fine roots; 2 percent faint clay films on faces of peds; few pockets of pale brown (10YR 6/3) sand; strongly acid; gradual smooth boundary.

Bt3—50 to 80 inches; red (2.5YR 4/6) sandy loam; weak medium subangular blocky structure; friable; sand grains bridged and coated with clay; common pockets of pale brown (10YR 6/3) sand; strongly acid.

### **Range in Characteristics**

*Thickness of the solum:* 60 to more than 72 inches

*Depth to bedrock:* More than 60 inches

#### *A horizon:*

Color—hue of 10YR, value of 4, and chroma of 2 or 3

Texture—fine sandy loam

Reaction—strongly acid or very strongly acid

#### *E horizon (where present):*

Color—hue of 10YR, value of 5 or 6, and chroma of 3 or 4

Texture—fine sandy loam or sandy loam

Reaction—strongly acid or very strongly acid

#### *BA horizon:*

Color—hue of 7.5YR or 5YR, value of 4 or 5, and chroma of 6 or 8

Texture—fine sandy loam or sandy loam

Reaction—strongly acid or very strongly acid



Figure 11.—Typical profile of Smithdale fine sandy loam.

*Upper part of the Bt horizon:*

Color—hue of 2.5YR or 5YR, value of 4 or 5, and chroma of 6 or 8

Texture—clay loam, sandy clay loam, or loam

Reaction—strongly acid or very strongly acid

*Lower part of the Bt horizon:*

Color—hue of 2.5YR or 5YR, value of 4 or 5, and chroma of 6 or 8; common pockets of pale brown to brownish yellow clean sand

Texture—loam or sandy loam

Reaction—strongly acid or very strongly acid

## **Smithton Series**

*MLRA:* Western Coastal Plain

*Geomorphic setting:* Stream terraces

*Parent material:* Loamy, marine deposits

*Drainage class:* Poorly drained

*Saturated hydraulic conductivity class:* Moderately slow

*Soil depth class:* Very deep

*Shrink-swell potential:* Low

*Slope:* 0 to 2 percent

*Taxonomic classification:* Coarse-loamy, siliceous, semiactive, thermic Typic

Paleaquults

### **Associated Soils**

The Smithton series is commonly associated with Amy, Bibb, Gurdon, Guyton, and Harleston soils.

### **Typical Pedon**

Smithton fine sandy loam, 0 to 2 percent slopes; in a wooded area; NE<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub> sec. 4, T. 18 S., R. 18 W.

A—0 to 6 inches; grayish brown (10YR 5/2) fine sandy loam; weak fine granular structure; very friable; many fine roots; strongly acid; clear smooth boundary.

Eg—6 to 19 inches; light brownish gray (10YR 6/2) fine sandy loam; weak medium subangular blocky structure; friable; many fine roots; 2 percent medium distinct yellowish brown (10YR 5/6) masses of oxidized iron; very strongly acid; gradual smooth boundary.

Btg1—19 to 31 inches; gray (10YR 6/1) fine sandy loam; weak medium subangular blocky structure; friable; common fine roots; 5 percent faint clay films on faces of peds; 10 percent medium distinct yellowish brown (10YR 5/6) masses of oxidized iron; very strongly acid; gradual wavy boundary.

Btg2—31 to 80 inches; gray (10YR 6/1) loam; moderate medium subangular blocky structure; friable; 5 percent faint clay films on faces of peds; 10 percent medium distinct strong brown (7.5YR 5/6) and 10 percent medium distinct yellowish brown (10YR 5/6) masses of oxidized iron; very strongly acid.

### **Range in Characteristics**

*Thickness of the solum:* 60 to more than 72 inches

*Depth to bedrock:* More than 60 inches

*A horizon:*

Color—hue of 10YR, value of 4 or 5, and chroma of 1 or 2

Texture—fine sandy loam

Reaction—strongly acid or very strongly acid

*Eg horizon:*

Color—hue of 10YR, value of 5 or 6, and chroma of 1 or 2

Texture—sandy loam or fine sandy loam

Color of redoximorphic concentrations—shades of brown and yellow

Reaction—strongly acid or very strongly acid

*Btg horizon:*

Color—hue of 10YR, value of 5 or 6, and chroma of 1 or 2

Texture—commonly loam or fine sandy loam but ranges to sandy clay loam or silty clay loam below a depth of 40 inches

Color of redoximorphic concentrations—shades of brown and yellow

Reaction—strongly acid or very strongly acid

## **Trebloc Series**

*MLRA:* Western Coastal Plain

*Geomorphic setting:* Depressions

*Parent material:* Loamy and clayey, marine deposits

*Drainage class:* Poorly drained

*Saturated hydraulic conductivity class:* Slow

*Soil depth class:* Very deep

*Shrink-swell potential:* Moderate

*Slope:* 0 to 2 percent

*Taxonomic classification:* Fine-silty, siliceous, active, thermic Typic Paleaquults

### **Associated Soils**

The Trebloc series is commonly associated with Sacul and Sawyer soils.

### **Typical Pedon**

Trebloc silt loam, 0 to 2 percent slopes; in a wooded area; NW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec. 35, T. 18 S., R. 14 W.

A—0 to 3 inches; grayish brown (10YR 5/2) silt loam; weak fine granular structure; friable; many fine roots; very strongly acid; clear smooth boundary.

Eg—3 to 9 inches; light brownish gray (10YR 6/2) silt loam; weak fine subangular blocky structure; friable; many fine roots; 10 percent medium distinct yellowish brown (10YR 5/6) masses of oxidized iron; few black concretions; strongly acid; clear wavy boundary.

Btg1—9 to 25 inches; light brownish gray (10YR 6/2) silt loam; weak fine subangular blocky structure; friable; few fine roots; 2 percent faint clay films on faces of peds; 2 percent medium distinct strong brown (7.5YR 5/8) masses of oxidized iron; very strongly acid; clear wavy boundary.

Btg2—25 to 34 inches; light brownish gray (10YR 6/2) silty clay loam; moderate medium subangular blocky structure; friable; few fine roots; 2 percent faint clay films on faces of peds; 10 percent medium distinct strong brown (7.5YR 5/6) and 10 percent medium distinct yellowish brown (10YR 5/6) masses of oxidized iron; common silt coatings on faces of some peds; very strongly acid; clear wavy boundary.

Btg3—34 to 61 inches; gray (10YR 6/1) silty clay; moderate medium subangular blocky structure; friable; few fine roots; 2 percent faint clay films on faces of peds; 10 percent medium distinct strong brown (7.5YR 5/8) masses of oxidized iron; common silt coatings on faces of some peds; few fine concretions; very strongly acid; clear wavy boundary.

Btg4—61 to 80 inches; light brownish gray (2.5Y 6/2) silty clay loam; moderate medium subangular blocky structure; friable; few fine roots; 2 percent faint clay

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films on faces of peds; 10 percent medium distinct brownish yellow (10YR 6/8) masses of oxidized iron; 2 percent masses of manganese; few silt coatings on faces of some peds; few black concretions; very strongly acid.

### Range in Characteristics

*Thickness of the solum:* 60 to more than 72 inches

*Depth to bedrock:* More than 60 inches

#### *A horizon:*

Color—hue of 10YR, value of 4 or 5, and chroma of 2

Texture—silt loam

Reaction—strongly acid or very strongly acid

#### *Eg horizon:*

Color—hue of 10YR, value of 5 or 6, and chroma of 1 or 2

Texture—silt loam or loam

Color of redoximorphic concentrations—shades of brown and yellow

Reaction—strongly acid or very strongly acid

#### *Upper part of the Btg horizon:*

Color—hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 1 or 2

Texture—silt loam or silty clay loam

Color of redoximorphic concentrations—shades of brown and yellow

Reaction—strongly acid or very strongly acid

#### *Lower part of the Btg horizon:*

Color—hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 1 or 2; or variegated in shades of gray and brown

Texture—silt loam, silty clay loam, or silty clay

Color of redoximorphic concentrations and depletions—shades of brown, yellow, or gray

Reaction—strongly acid or very strongly acid

## Una Series

*MLRA:* Western Coastal Plain

*Geomorphic setting:* Flood plains

*Parent material:* Clayey alluvium

*Drainage class:* Poorly drained

*Saturated hydraulic conductivity class:* Very slow

*Soil depth class:* Very deep

*Shrink-swell potential:* High

*Slope:* 0 to 1 percent

*Taxonomic classification:* Fine, mixed, active, acid, thermic Typic Epiaquepts

### Associated Soils

The Una series is commonly associated with Amy, Gurdon, and Guyton soils and Aquents.

### Typical Pedon

Una silty clay loam, 0 to 1 percent slopes, frequently flooded; in a wooded area; SE<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec. 17, T. 18 S., R. 10 W.

A—0 to 7 inches; dark grayish brown (10YR 4/2) silty clay loam; weak medium subangular blocky structure; firm; many fine roots; few fine and few medium pores; 25 percent medium distinct strong brown (7.5YR 5/6) masses of oxidized iron; very strongly acid; abrupt smooth boundary.



- Bg1—7 to 14 inches; light brownish gray (10YR 6/2) silty clay; strong medium subangular blocky structure; firm; common fine and common medium roots; few fine and few medium pores; 2 percent pressure faces on faces of peds; 25 percent medium distinct strong brown (7.5YR 5/6) and 25 percent medium distinct reddish yellow (7.5YR 6/8) masses of oxidized iron; few fine black concretions; very strongly acid; gradual smooth boundary.
- Bg2—14 to 30 inches; light brownish gray (10YR 6/2) silty clay; strong medium subangular blocky structure; firm; few fine and few medium roots; 2 percent pressure faces on faces of peds; 10 percent medium distinct reddish yellow (7.5YR 6/8) and 10 percent medium distinct strong brown (7.5YR 5/6) masses of oxidized iron; few fine black concretions; very strongly acid; gradual wavy boundary.
- Bg3—30 to 44 inches; light brownish gray (10YR 6/2) clay; strong medium subangular blocky structure; firm; few fine and few medium roots; 2 percent pressure faces on faces of peds; 10 percent medium distinct reddish yellow (7.5YR 6/8) and 10 percent medium distinct strong brown (7.5YR 5/6) masses of oxidized iron; few fine black concretions; very strongly acid; gradual wavy boundary.
- Bg4—44 to 57 inches; light brownish gray (10YR 6/2) silty clay; strong medium subangular blocky structure; firm; few fine and few medium pores; 10 percent medium distinct strong brown (7.5YR 5/6) masses of oxidized iron; 2 percent fine masses of manganese; few 2- to 4-inch diameter pockets of light yellowish brown (10YR 6/4) fine sandy loam; few fine black concretions; very strongly acid; abrupt wavy boundary.
- Bg5—57 to 80 inches; light brownish gray (10YR 6/2) silty clay; strong medium subangular blocky structure; firm; few fine pores; 25 percent medium distinct strong brown (7.5YR 5/6) masses of oxidized iron; few fine black concretions; very strongly acid.

#### **Range in Characteristics**

*Thickness of the solum:* 60 to more than 72 inches

*Depth to bedrock:* More than 60 inches

##### *A horizon:*

Color—hue of 10YR, value of 4 or 5, and chroma of 1 or 2

Texture—silty clay loam

Color of redoximorphic concentrations and depletions—shades of brown, gray, and yellow

Reaction—strongly acid or very strongly acid

##### *Bg horizon:*

Color—hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 1 or 2

Texture—silty clay loam, silty clay, or clay

Color of redoximorphic concentrations and depletions—shades of brown, gray, and yellow

Reaction—strongly acid or very strongly acid

### **Warnock Series**

*MLRA:* Western Coastal Plain

*Geomorphic setting:* Hills

*Parent material:* Loamy, marine deposits

*Drainage class:* Moderately well drained

*Saturated hydraulic conductivity class:* Moderate

*Soil depth class:* Very deep



*Shrink-swell potential:* Low

*Slope:* 1 to 8 percent

*Taxonomic classification:* Fine-loamy, siliceous, semiactive, thermic Typic Paleudults

### **Associated Soils**

The Warnock series is commonly associated with Angie, Briley, Darden, Harleston, Rosalie, Ruston, Sacul, Sawyer, and Smithdale soils.

### **Typical Pedon**

Warnock fine sandy loam, 1 to 7 percent slopes; in a wooded area; SW<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec. 30, T. 19 S., R. 17 W. (fig. 12)

A—0 to 6 inches; dark grayish brown (10YR 4/2) fine sandy loam; weak fine granular structure; very friable; many fine and many medium roots; strongly acid; clear smooth boundary.

E—6 to 9 inches; brown (10YR 5/3) fine sandy loam; weak fine granular structure; very friable; common fine and common medium roots; strongly acid; clear smooth boundary.

Bt—9 to 34 inches; yellowish brown (10YR 5/6) sandy clay loam; moderate medium subangular blocky structure; friable; few fine and few medium roots; 25 percent clay films on faces of peds; very strongly acid; gradual smooth boundary.

Btx1—34 to 54 inches; yellowish brown (10YR 5/6) sandy clay loam; weak coarse prismatic and moderate medium subangular blocky structure; friable; few fine and few medium roots; 2 percent distinct clay films on faces of peds; 10 percent medium prominent red (2.5YR 4/6) masses of oxidized iron; 10 percent medium distinct light brownish gray (10YR 6/2) iron depletions; firm and slightly brittle in about 15 to 20 percent of mass; very strongly acid; gradual irregular boundary.

Btx2—54 to 80 inches; gray (10YR 6/1), brownish yellow (10YR 6/6), and red (2.5YR 4/8) sandy clay loam; moderate medium subangular blocky and weak coarse prismatic structure; firm; few fine roots; 2 percent faint clay films on faces of peds; firm and slightly brittle in 20 to 30 percent of mass; very strongly acid.

### **Range in Characteristics**

*Thickness of the solum:* 60 to more than 72 inches

*Depth to bedrock:* More than 60 inches

#### *A horizon:*

Color—hue of 10YR, value of 4, and chroma of 2 or 3; or hue of 10YR, value of 5, and chroma of 3

Texture—fine sandy loam

Reaction—strongly acid or very strongly acid

#### *E horizon:*

Color—hue of 10YR, value of 5 or 6, and chroma of 3 or 4

Texture—fine sandy loam or sandy loam

Reaction—strongly acid or very strongly acid

#### *Bt horizon:*

Color—10YR, value of 5 or 6, and chroma of 4, 6, or 8; or hue of 7.5YR, value of 5 or 6, and chroma of 6 or 8

Texture—loam, sandy clay loam, and clay loam

Color of redoximorphic concentrations and depletions (where present)—shades of red and brown

Reaction—strongly acid or very strongly acid



Figure 12.—Typical profile of Warnock fine sandy loam.

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### *Btx horizon:*

Color—hue of 10YR, value of 5 or 6, and chroma of 4, 6 or 8; hue of 7.5YR, value of 5, and chroma of 6 or 8; or variegated in shades of red, brown, yellow, and gray

Texture—loam, sandy clay loam, or clay loam

Color of redoximorphic concentrations and depletions—shades of red, gray, and brown

Reaction—strongly acid or very strongly acid

# Formation of the Soils

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This section describes the factors of soil formation as they relate to the soils in the county and explains the processes involved in soil formation.

## Factors of Soil Formation

Soil is a collection of three-dimensional natural bodies on the earth's surface. Soil supports plants and has properties resulting from the integrated effect of climate and living matter acting on parent material, as conditioned by relief, over time.

Soil is the product of soil-forming processes acting on accumulated or deposited geologic material. The characteristics of the soil are determined by the type of parent material; the plant and animal life on and in the soil; the climate under which the soil-forming factors were active; the topography, or lay of the land; and the length of time these forces have been active.

The parent material affects the kind of soil profile that is formed and, in extreme cases, determines the profile almost entirely. Plant and animal life are the active factors of soil formation. The climate determines the amount of water available for leaching and the amount of heat for physical and chemical changes. Together, climate and plant and animal life act on the parent material and slowly change it to a natural body that has genetically related horizons. Topography commonly modifies these other factors. Finally, time is required for changes in the parent material to result in the formation of a soil. Generally, a long time is required for the development of distinct soil horizons.

The factors of soil formation are so closely interrelated that few generalizations can be made about the effects of any one factor unless conditions are specified for the other four. Soil formation is complex, and many processes of soil development are still unknown.

The influence of any factor can vary from place to place, but the interaction of all factors determines the kind of soil that forms. In the following paragraphs the factors of soil formation are discussed as they relate to the soils in the survey area.

## Parent Material

The soils of Union County formed in two broad classes of parent material: alluvium deposited by local streams and marine sediment deposited when the Gulf of Mexico covered southern and eastern Arkansas (Haley, 1976).

The parent material in the eastern and northern parts of the county is mostly alluvium deposited by the Ouachita River and its tributaries. Examples of soils that formed in this alluvium include Amy, Guyton, Gurdon, Smithton, and Una soils. The parent material on the uplands is mainly loamy and clayey, marine sediment. Examples of soils that formed in this sediment include Briley, Darden, Harleston, Rosalie, Ruston, Sawyer, Sacul, Smithdale, and Warnock soils.



## **Climate**

The climate of Union County is characterized by relatively short, cool winters and long, hot summers with adequate rainfall. The present climate probably is similar to the climate under which the soils formed. The average daily temperature is about 80 degrees during the summer and about 45 degrees during the winter. Average annual rainfall is about 50 inches and is generally well distributed throughout the year. For additional information about the climate, refer to the section "General Nature of the County."

The warm, moist climate of the survey area promotes rapid soil formation and rapid chemical reactions. The large amount of water that moves through the soil is instrumental in moving dissolved or suspended materials downward in the soil profile. Plant remains decompose rapidly, and the organic acid that forms hastens the removal of carbonates and the formation of clay. Because only the upper few inches of the soil is ever frozen, and then only for a relatively short period, soil formation continues almost year around. The climate throughout the survey area is relatively uniform, but its effect is modified locally by elevation and slope aspect. Climate alone does not account for differences between the soils in the survey area.

## **Living Organisms**

The higher forms of plants and animals, as well as insects, bacteria, and fungi, are important in the formation of soils. Among the changes caused by living organisms are gains in organic matter and nitrogen, gains or losses in plant nutrients, and changes in structure and porosity.

Before Union County was settled, the native vegetation probably had more influence on soil formation than did animal activity. Hardwood and pine forests covered the county. Differences in native vegetation were probably related mainly to variations in drainage and, to a lesser degree, parent material. Because the type of vegetation is relatively uniform throughout the county, differences between the soils cannot be directly related to vegetation.

People are important to the present and future rates and directions of soil formation. People clear forests, cultivate soils, and introduce new kinds of plants. People add fertilizer, lime, and chemicals to the soil to control insects, diseases, and weeds. Constructing levees and dams for flood control, installing drainage systems, and grading the surface also affect the development of soils. In some cases, the results of human changes to soil formation may not be evident for many centuries. People have, however, drastically changed the complex of living organisms affecting soil formation in the county.

## **Relief**

Relief is the inequalities in elevation of a land surface. Relief affects the other soil forming factors through its effects on drainage, runoff, erosion, and percolation of water through the soil. Some of the greatest differences between the soils are due mainly to differences in relief.

## **Time**

The length of time required for the formation of soil depends mainly on the other factors of soil formation. Less time generally is required where the climate is warm and humid, the vegetation is luxuriant, and the parent material is loamy. Older soils generally show a greater degree of differentiation between horizons.

The soils on uplands generally have the most strongly developed argillic horizons and are the most mature soils in Union County. Soils on the flood plains consist of younger material and are much less mature than most of the soils on the uplands. Examples of soils that formed on flood plains include Bibb and Una soils.

## Processes of Horizon Differentiation

The effects of the soil-forming factors are reflected in the soil profile. The soil profile is a succession of layers, or horizons, from the surface downward and includes at least the upper portion of parent material that has been little altered by soil-forming processes. The horizons differ in one or more properties, such as color, texture, structure, consistence, porosity, and reaction.

Most soil profiles in the county contain three to five major horizons, or layers. The major horizons are designated A, E, B, and C. Young soils commonly do not have E and B horizons.

The horizon of maximum accumulation of humified organic matter is called the A horizon, or the surface layer. The horizon of maximum leaching of dissolved or suspended material is called the E horizon, or the subsurface layer.

The B horizon is directly below the E horizon and is sometimes called the subsoil (Winters and Simonson, 1951). It is the horizon of maximum accumulation of dissolved or suspended material, such as iron and silicate clay. Commonly, the B horizon has blocky structure and is firmer than the horizons directly above and below it.

The C horizon or layer is below the A and B horizons. Typically, the C horizon has been little affected by the soil-forming processes; although in places it has been materially modified by weathering. In some young soils, the C horizon has been only slightly modified by living organisms and by weathering and directly underlies the A horizon.

Several processes have been active in the formation of soil horizons in Union County. Among these processes are the accumulation of organic matter, the leaching of carbonates and bases, the oxidation or reduction and transfer of iron, and the formation and translocation of silicate clay minerals. In most of the soils, more than one of these processes have been involved.

The accumulation of organic matter to form an A horizon in the upper part of the profile has been an important process of soil formation. The content of organic matter in the soils of the county ranges from low to moderate.

Leaching of carbonates and bases has occurred to some degree in nearly all of the soils in the county. Generally, bases are leached downward in soils before silicate clay minerals begin to move. Most of the upland soils have been strongly leached.

Oxidation of iron is evident in moderately well drained and well drained soils. Red or brown colors in the B horizon are an indication of the oxidation of iron. Examples of soils in which red or brown colors indicate oxidation include Briley, Sacul, Smithdale, and Warnock soils.

Reduction and transfer of iron have occurred to a significant extent in the somewhat poorly drained and poorly drained soils in the county. In the naturally wet soils, this process is called gleying. Gray colors in the horizons below the surface layer indicate the reduction and loss of iron. Some horizons contain reddish or yellowish mottles and concretions derived from segregated iron. Gleying is very pronounced in the Amy, Guyton, and Trebloc soils.

The translocation of silicate clay minerals has contributed to horizon development in most of the soils in the county. In areas where the soils have been cultivated, most of any eluviated E horizon has been destroyed. Where it remains, however, the E horizon has weak granular to blocky structure, has less clay than the underlying horizons, and is lighter colored than the rest of the soil. Clay films generally have



## Soil Survey of Union County, Arkansas

accumulated in pores and on the surfaces of peds in the B horizon. The soils were probably leached of carbonates and soluble salts to a great extent before the translocation of silicate clay occurred.

In Union County, leaching of bases and translocation of silicate clay are among the most important processes of horizon differentiation.

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# Glossary

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**ABC soil.** A soil having an A, a B, and a C horizon.

**AC soil.** A soil having only an A and a C horizon. Commonly, such soil formed in recent alluvium or on steep, rocky slopes.

**Aggregate, soil.** Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

**Alluvium.** Material, such as sand, silt, or clay, deposited on land by streams.

**Alpha,alpha-dipyridyl.** A dye that when dissolved in 1N ammonium acetate is used to detect the presence of reduced iron (Fe II) in the soil. A positive reaction indicates a type of redoximorphic feature.

**Animal unit month (AUM).** The amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.

**Aquic conditions.** Current soil wetness characterized by saturation, reduction, and redoximorphic features.

**Area reclaim** (in tables). An area difficult to reclaim after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

**Argillic horizon.** A subsoil horizon characterized by an accumulation of illuvial clay.

**Aspect.** The direction in which a slope faces.

**Available water capacity (available moisture capacity).** The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as:

Very low .....	0 to 3
Low .....	3 to 6
Moderate .....	6 to 9
High .....	9 to 12
Very high .....	more than 12

**Backslope.** The geomorphic component that forms the steepest inclined surface and principal element of many hillsides. Backslopes in profile are commonly steep, are linear, and may or may not include cliff segments.

**Basal area.** The area of a cross section of a tree, generally referring to the section at breast height and measured outside the bark. It is a measure of stand density, commonly expressed in square feet.

**Base saturation.** The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, and K), expressed as a percentage of the total cation-exchange capacity.

**Base slope.** A geomorphic component of hills consisting of the concave to linear (perpendicular to the contour) slope that, regardless of the lateral shape, forms an apron or wedge at the bottom of a hillside dominated by colluvium and slope-wash sediments (for example, slope alluvium).

- Bedding planes.** Fine strata, less than 5 millimeters thick, in unconsolidated alluvial, eolian, lacustrine, or marine sediment.
- Bedrock.** The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.
- Board foot.** A unit of measure of the wood in lumber, logs, or trees. One board foot is the amount of wood in a board 1 foot wide, 1 foot long, and 1 inch thick before finishing.
- Bottomland.** The normal flood plain of a stream, subject to flooding.
- Breast height.** An average height of 4.5 feet above the ground surface; the point on a tree where diameter measurements are ordinarily taken.
- Brush management.** Use of mechanical, chemical, or biological methods to make conditions favorable for reseeding or to reduce or eliminate competition from woody vegetation and thus allow understory grasses and forbs to recover. Brush management increases forage production and thus reduces the hazard of erosion. It can improve the habitat for some species of wildlife.
- Calcareous soil.** A soil containing enough calcium carbonate (commonly combined with magnesium carbonate) to effervesce visibly when treated with cold, dilute hydrochloric acid.
- Cation-exchange capacity.** The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.
- Channeled.** Refers to a drainage area in which natural meandering or repeated branching and convergence of a streambed have created deeply incised cuts, either active or abandoned, in alluvial material.
- Clay.** As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.
- Clay depletions.** Low-chroma zones having a low content of iron, manganese, and clay because of the chemical reduction of iron and manganese and the removal of iron, manganese, and clay. A type of redoximorphic depletion.
- Clay film.** A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.
- Clayey soil.** Silty clay, sandy clay, or clay.
- Clearcut.** A method of forest harvesting that removes the entire stand of trees in one cutting. Reproduction is achieved artificially or by natural seeding from the adjacent stands.
- Climax plant community.** The stabilized plant community on a particular site. The plant cover reproduces itself and does not change so long as the environment remains the same.
- Coarse fragments.** Mineral or rock particles larger than 2 millimeters in diameter.
- Coarse textured soil.** Sand or loamy sand.
- Codominant trees.** Trees whose crowns form the general level of the forest canopy and that receive full light from above but comparatively little from the sides.
- COLE (coefficient of linear extensibility).** See Linear extensibility.
- Commercial forest.** Forestland capable of producing 20 cubic feet or more per acre per year at the culmination of mean annual increment.
- Complex, soil.** A map unit of two or more kinds of soil or miscellaneous areas in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.
- Concretions.** Cemented bodies with crude internal symmetry organized around a point, a line, or a plane. They typically take the form of concentric layers visible to the naked eye. Calcium carbonate, iron oxide, and manganese oxide are common

compounds making up concretions. If formed in place, concretions of iron oxide or manganese oxide are generally considered a type of redoximorphic concentration.

**Conservation cropping system.** Growing crops in combination with needed cultural and management practices. In a good conservation cropping system, the soil-improving crops and practices more than offset the effects of the soil-depleting crops and practices. Cropping systems are needed on all tilled soils. Soil-improving practices in a conservation cropping system include the use of rotations that contain grasses and legumes and the return of crop residue to the soil. Other practices include the use of green manure crops of grasses and legumes, proper tillage, adequate fertilization, and weed and pest control.

**Conservation tillage.** A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.

**Consistence, soil.** Refers to the degree of cohesion and adhesion of soil material and its resistance to deformation when ruptured. Consistence includes resistance of soil material to rupture and to penetration; plasticity, toughness, and stickiness of puddled soil material; and the manner in which the soil material behaves when subject to compression. Terms describing consistence are defined in the "Soil Survey Manual."

**Control section.** The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

**Corrosion.** Soil-induced electrochemical or chemical action that dissolves or weakens concrete or uncoated steel.

**Cover crop.** A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

**Cropping system.** Growing crops according to a planned system of rotation and management practices.

**Crop residue management.** Returning crop residue to the soil, which helps to maintain soil structure, organic matter content, and fertility and helps to control erosion.

**Culmination of the mean annual increment (CMAI).** The average annual increase per acre in the volume of a stand. Computed by dividing the total volume of the stand by its age. As the stand increases in age, the mean annual increment continues to increase until mortality begins to reduce the rate of increase. The point where the stand reaches its maximum annual rate of growth is called the culmination of the mean annual increment.

**Cutbanks cave** (in tables). The walls of excavations tend to cave in or slough.

**Decreasers.** The most heavily grazed climax range plants. Because they are the most palatable, they are the first to be destroyed by overgrazing.

**Deep soil.** A soil that is 40 to 60 inches deep over bedrock or to other material that restricts the penetration of plant roots.

**Deep to water** (in tables). Deep to permanent water during the dry season.

**Deferred grazing.** Postponing grazing or resting grazing land for a prescribed period.

**Depth, soil.** Generally, the thickness of the soil over bedrock. Very deep soils are more than 60 inches deep over bedrock; deep soils, 40 to 60 inches; moderately deep, 20 to 40 inches; shallow, 10 to 20 inches; and very shallow, less than 10 inches.

**Diversion (or diversion terrace).** A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

**Dominant trees.** Trees whose crowns form the general level of the forest canopy and that receive full light from above and from the sides.

**Drainage class** (natural). Refers to the frequency and duration of wet periods under



conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized—*excessively drained*, *somewhat excessively drained*, *well drained*, *moderately well drained*, *somewhat poorly drained*, *poorly drained*, and *very poorly drained*. These classes are defined in the "Soil Survey Manual."

**Drainage, surface.** Runoff, or surface flow of water, from an area.

**Drainageway.** An area of ground at a lower elevation than the surrounding ground and in which water collects and is drained to a closed depression or lake or to a drainageway at a lower elevation. A drainageway may or may not have distinctly incised channels at its upper reaches or throughout its course.

**Droughty** (in tables). Soil holds too little water for plants during dry periods.

**Ecological site.** An area where climate, soil, and relief are sufficiently uniform to produce a distinct natural plant community. An ecological site is the product of all the environmental factors responsible for its development. It is typified by an association of species that differ from those on other ecological sites in kind and/or proportion of species or in total production.

**Eluviation.** The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

**Endosaturation.** A type of saturation of the soil in which all horizons between the upper boundary of saturation and a depth of 2 meters are saturated.

**Eolian soil material.** Earthy parent material accumulated through wind action; commonly refers to sandy material in dunes or to loess in blankets on the surface.

**Ephemeral stream.** A stream, or reach of a stream, that flows only in direct response to precipitation. It receives no long-continued supply from melting snow or other source, and its channel is above the water table at all times.

**Episaturation.** A type of saturation indicating a perched water table in a soil in which saturated layers are underlain by one or more unsaturated layers within 2 meters of the surface.

**Erodes easily** (in tables). Soil is easily eroded by water.

**Erosion.** The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

**Erosion** (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

**Erosion** (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as a fire, that exposes the surface.

**Escarpment.** A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and resulting from erosion or faulting. Synonym: scarp.

**Excess fines** (in tables). Excess silt and clay in the soil. The soil does not provide a source of gravel or sand for construction purposes.

**Fallow.** Cropland left idle in order to restore productivity through accumulation of moisture. Summer fallow is common in regions of limited rainfall where cereal grain is grown. The soil is tilled for at least one growing season for weed control and decomposition of plant residue.

**Fast intake** (in tables). The rapid movement of water into the soil.

**Fertility, soil.** The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

- Field moisture capacity.** The moisture content of a soil, expressed as a percentage of the oven-dry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity*, *normal moisture capacity*, or *capillary capacity*.
- Fine textured soil.** Sandy clay, silty clay, or clay.
- First bottom.** The normal flood plain of a stream, subject to frequent or occasional flooding.
- Flooding** (in tables). Soil flooded by moving water from stream overflow or runoff.
- Flood plain.** A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.
- Fluvial.** Of or pertaining to rivers; produced by river action, as a fluvial plain.
- Footslope.** The position that forms the inner, gently inclined surface at the base of a hillslope. In profile, footslopes are commonly concave. A footslope is a transition zone between upslope sites of erosion and transport (shoulders and backslopes) and downslope sites of deposition (toeslopes).
- Forb.** Any herbaceous plant not a grass or a sedge.
- Forest cover.** All trees and other woody plants (underbrush) covering the ground in a forest.
- Forest type.** A stand of trees similar in composition and development because of given physical and biological factors by which it may be differentiated from other stands.
- Fragile** (in tables). A soil that is easily damaged by use or disturbance.
- Fragipan.** A loamy, brittle subsurface horizon low in porosity and content of organic matter and low or moderate in clay but high in silt or very fine sand. A fragipan appears cemented and restricts roots. When dry, it is hard or very hard and has a higher bulk density than the horizon or horizons above. When moist, it tends to rupture suddenly under pressure rather than to deform slowly.
- Genesis, soil.** The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.
- Gleyed soil.** Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors.
- Grassed waterway.** A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.
- Gravel.** Rounded or angular fragments of rock as much as 3 inches (7.6 centimeters) in diameter. An individual piece is a pebble.
- Gravelly soil material.** Material that is 15 to 35 percent, by volume, rounded or angular rock fragments, not prominently flattened, as much as 3 inches (7.6 centimeters) in diameter.
- Ground water.** Water filling all the unblocked pores of the material below the water table.
- Gully.** A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.
- Hard bedrock.** Bedrock that cannot be excavated except by blasting or by the use of special equipment that is not commonly used in construction.
- Hard to pack** (in tables). Difficult to compact using regular earthwork construction equipment.
- High-residue crops.** Such crops as small grain and corn used for grain. If properly managed, residue from these crops can be used to control erosion until the next

crop in the rotation is established. These crops return large amounts of organic matter to the soil.

**Hill.** A natural elevation of the land surface, rising as much as 1,000 feet above surrounding lowlands, commonly of limited summit area and having a well defined outline; hillsides generally have slopes of more than 15 percent. The distinction between a hill and a mountain is arbitrary and is dependent on local usage.

**Horizon, soil.** A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the "Soil Survey Manual." The major horizons of mineral soil are as follows:

*O horizon.*—An organic layer of fresh and decaying plant residue.

*A horizon.*—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

*E horizon.*—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

*B horizon.*—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

*C horizon.*—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.

*Cr horizon.*—Soft, consolidated bedrock beneath the soil.

*R layer.*—Consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon, but it can be directly below an A or a B horizon.

**Hydrologic soil groups.** Refers to soils grouped according to their runoff potential.

The soil properties that influence this potential are those that affect the minimum rate of water infiltration on a bare soil during periods after prolonged wetting when the soil is not frozen. These properties are depth to a seasonal high water table, the infiltration rate and permeability after prolonged wetting, and depth to a very slowly permeable layer. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff.

**Illuviation.** The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

**Infiltration.** The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

**Infiltration capacity.** The maximum rate at which water can infiltrate into a soil under a given set of conditions.

**Infiltration rate.** The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

**Infrequent flooding** (in tables). Flooding occurs at an interval that limits riparian plant species.

**Intake rate.** The average rate of water entering the soil under irrigation. Most soils have a fast initial rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net irrigation application. The rate of water intake, in inches per hour, is expressed as follows:

Less than 0.2 .....	very low
0.2 to 0.4 .....	low
0.4 to 0.75 .....	moderately low
0.75 to 1.25 .....	moderate
1.25 to 1.75 .....	moderately high
1.75 to 2.5 .....	high
More than 2.5 .....	very high

**Interfluve.** An elevated area between two drainageways that sheds water to those drainageways.

**Intermittent stream.** A stream, or reach of a stream, that flows for prolonged periods only when it receives ground-water discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

**Iron depletions.** Low-chroma zones having a low content of iron and manganese oxide because of chemical reduction and removal, but having a clay content similar to that of the adjacent matrix. A type of redoximorphic depletion.

**Irrigation.** Application of water to soils to assist in production of crops. Methods of irrigation are:

*Border.*—Water is applied at the upper end of a strip in which the lateral flow of water is controlled by small earth ridges called border dikes, or borders.

*Furrow.*—Water is applied in small ditches made by cultivation implements. Furrows are used for tree and row crops.

*Sprinkler.*—Water is sprayed over the soil surface through pipes or nozzles from a pressure system.

**Ksat.** Saturated hydraulic conductivity. (See Permeability.)

**Large stones** (in tables). Rock fragments 3 inches (7.6 centimeters) or more across. Large stones adversely affect the specified use of the soil.

**Leaching.** The removal of soluble material from soil or other material by percolating water.

**Linear extensibility.** Refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. Linear extensibility is used to determine the shrink-swell potential of soils. It is an expression of the volume change between the water content of the clod at  $\frac{1}{3}$ - or  $\frac{1}{10}$ -bar tension (33kPa or 10kPa tension) and oven dryness. Volume change is influenced by the amount and type of clay minerals in the soil. The volume change is the percent change for the whole soil. If it is expressed as a fraction, the resulting value is COLE, coefficient of linear extensibility.

**Liquid limit.** The moisture content at which the soil passes from a plastic to a liquid state.

**Loam.** Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

**Loamy soil.** Coarse sandy loam, sandy loam, fine sandy loam, very fine sandy loam, loam, silt loam, silt, clay loam, sandy clay loam, or silty clay loam.

**Loess.** Fine grained material, dominantly of silt-sized particles, deposited by wind.

**Low strength.** The soil is not strong enough to support loads.

**Masses.** Concentrations of substances in the soil matrix that do not have a clearly defined boundary with the surrounding soil material and cannot be removed as a discrete unit. Common compounds making up masses are calcium carbonate, gypsum or other soluble salts, iron oxide, and manganese oxide. Masses

consisting of iron oxide or manganese oxide generally are considered a type of redoximorphic concentration.

**Mean annual increment (MAI).** The average annual increase in volume of a tree during the entire life of the tree.

**Mechanical treatment.** Use of mechanical equipment for seeding, brush management, and other management practices.

**Medium textured soil.** Very fine sandy loam, loam, silt loam, or silt.

**Merchantable trees.** Trees that are of sufficient size to be economically processed into wood products.

**Mineral soil.** Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

**Minimum tillage.** Only the tillage essential to crop production and prevention of soil damage.

**Miscellaneous area.** An area that has little or no natural soil and supports little or no vegetation.

**Moderately coarse textured soil.** Coarse sandy loam, sandy loam, or fine sandy loam.

**Moderately deep soil.** A soil that is 20 to 40 inches deep over bedrock or to other material that restricts the penetration of plant roots.

**Moderately fine textured soil.** Clay loam, sandy clay loam, or silty clay loam.

**Mollic epipedon.** A thick, dark, humus-rich surface horizon (or horizons) that has high base saturation and pedogenic soil structure. It may include the upper part of the subsoil.

**Morphology, soil.** The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

**Munsell notation.** A designation of color by degrees of three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.

**Neutral soil.** A soil having a pH value of 6.6 to 7.3. (See Reaction, soil.)

**Nodules.** Cemented bodies lacking visible internal structure. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up nodules. If formed in place, nodules of iron oxide or manganese oxide are considered types of redoximorphic concentrations.

**Nose slope.** A geomorphic component of hills consisting of the projecting end (laterally convex area) of a hillside. The overland waterflow is predominantly divergent.

**Nutrient, plant.** Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

**Organic matter.** Plant and animal residue in the soil in various stages of decomposition. The content of organic matter in the surface layer is described as follows:

Very low .....	less than 0.5 percent
Low .....	0.5 to 1.0 percent
Moderately low .....	1.0 to 2.0 percent
Moderate .....	2.0 to 4.0 percent
High .....	4.0 to 8.0 percent
Very high .....	more than 8.0 percent

**Overstory.** The trees in a forest that form the upper crown cover.

**Oxbow.** The horseshoe-shaped channel of a former meander, remaining after the stream formed a cutoff across a narrow meander neck.

**Pan.** A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, *hardpan*, *fragipan*, *claypan*, *plowpan*, and *traffic pan*.

**Parent material.** The unconsolidated organic and mineral material in which soil forms.

**Ped.** An individual natural soil aggregate, such as a granule, a prism, or a block.

**Pedon.** The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

**Percolation.** The downward movement of water through the soil.

**Percs slowly** (in tables). The slow movement of water through the soil adversely affects the specified use.

**Permeability.** The quality of the soil that enables water or air to move downward through the profile. The rate at which a saturated soil transmits water is accepted as a measure of this quality. In soil physics, the rate is referred to as "saturated hydraulic conductivity," which is defined in the "Soil Survey Manual." In line with conventional usage in the engineering profession and with traditional usage in published soil surveys, this rate of flow continues to be expressed as "permeability." Terms describing permeability, measured in inches per hour, and saturated hydraulic conductivity, in micrometers per second, are as follows:

Permeability Class (inches/hour)	Ksat Class (micrometers/second)
Very rapid ..... 20 or more	Very high ..... 141.14 or more
Rapid ..... 6.0 to < 20	High to very high ..... 42.34 to < 41.14
Moderately rapid ..... 2.0 to < 6.0	High ..... 14.11 to < 42.34
Moderate ..... 0.60 to < 2.0	Moderately high to high ..... 4.23 to < 14.11
Moderately slow ..... 0.20 to < 0.60	Moderately high ..... 1.41 to < 4.23
Slow ..... 0.06 to < 0.20	Moderately low to moderately high ..... 0.42 to < 1.41
Very slow ..... 0.0015 to < 0.06	Low to moderately low ..... 0.01 to < 0.42
Impermeable ..... < 0.0015	Very low ..... less than 0.01

**Phase, soil.** A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and flooding.

**pH value.** A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

**Plasticity index.** The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

**Plastic limit.** The moisture content at which a soil changes from semisolid to plastic.

**Plinthite.** The sesquioxide-rich, humus-poor, highly weathered mixture of clay with quartz and other diluents. It commonly appears as red mottles, usually in platy, polygonal, or reticulate patterns. Plinthite changes irreversibly to an ironstone hardpan or to irregular aggregates on repeated wetting and drying, especially if it is exposed also to heat from the sun. In a moist soil, plinthite can be cut with a spade. It is a form of laterite.

**Ponding.** Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

**Poor filter** (in tables). Because of rapid or very rapid permeability, the soil may not adequately filter effluent from a waste disposal system.

**Prescribed burning.** Deliberately burning an area for specific management purposes, under the appropriate conditions of weather and soil moisture and at the proper time of day.



**Profile, soil.** A vertical section of the soil extending through all its horizons and into the parent material.

**Proper grazing use.** Grazing at an intensity that maintains enough cover to protect the soil and maintain or improve the quantity and quality of the desirable vegetation. This practice increases the vigor and reproduction capacity of the key plants and promotes the accumulation of litter and mulch necessary to conserve soil and water.

**Reaction, soil.** A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

Ultra acid .....	less than 3.5
Extremely acid .....	3.5 to 4.4
Very strongly acid .....	4.5 to 5.0
Strongly acid .....	5.1 to 5.5
Moderately acid .....	5.6 to 6.0
Slightly acid .....	6.1 to 6.5
Neutral .....	6.6 to 7.3
Slightly alkaline .....	7.4 to 7.8
Moderately alkaline .....	7.9 to 8.4
Strongly alkaline .....	8.5 to 9.0
Very strongly alkaline .....	9.1 and higher

**Redoximorphic concentrations.** Nodules, concretions, soft masses, pore linings, and other features resulting from the accumulation of iron or manganese oxide. An indication of chemical reduction and oxidation resulting from saturation.

**Redoximorphic depletions.** Low-chroma zones from which iron and manganese oxide or a combination of iron and manganese oxide and clay has been removed. These zones are indications of the chemical reduction of iron resulting from saturation.

**Redoximorphic features.** Redoximorphic concentrations, redoximorphic depletions, reduced matrices, a positive reaction to alpha,alpha-dipyridyl, and other features indicating the chemical reduction and oxidation of iron and manganese compounds resulting from saturation.

**Reduced matrix.** A soil matrix that has low chroma in situ because of chemically reduced iron (Fe II). The chemical reduction results from nearly continuous wetness. The matrix undergoes a change in hue or chroma within 30 minutes after exposure to air as the iron is oxidized (Fe III). A type of redoximorphic feature.

**Relict stream terrace.** One of a series of platforms in or adjacent to a stream valley that formed prior to the current stream system.

**Relief.** The elevations or inequalities of a land surface, considered collectively.

**Residuum (residual soil material).** Unconsolidated, weathered or partly weathered mineral material that accumulated as consolidated rock disintegrated in place.

**Rill.** A steep-sided channel resulting from accelerated erosion. A rill generally is a few inches deep and not wide enough to be an obstacle to farm machinery.

**Riser.** The relatively short, steeply sloping area below a terrace tread that grades to a lower terrace tread or base level.

**Riverwash.** Unstable areas of sandy, silty, clayey, or gravelly sediments. These areas are flooded, washed, and reworked by rivers so frequently that they support little or no vegetation.

**Road cut.** A sloping surface produced by mechanical means during road construction. It is commonly on the uphill side of the road.

**Rock fragments.** Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

**Rock outcrop.** Exposures of bare bedrock other than lava flows and rock-lined pits.  
**Rooting depth** (in tables). Shallow root zone. The soil is shallow over a layer that greatly restricts roots.

**Root zone.** The part of the soil that can be penetrated by plant roots.

**Runoff.** The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

**Saline soil.** A soil containing soluble salts in an amount that impairs growth of plants. A saline soil does not contain excess exchangeable sodium.

**Salinity.** The electrical conductivity of a saline soil. It is expressed, in millimhos per centimeter, as follows:

Nonsaline .....	0 to 4
Slightly saline .....	4 to 8
Moderately saline .....	8 to 16
Strongly saline .....	more than 16

**Salty water** (in tables). Water that is too salty for consumption by livestock.

**Sand.** As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

**Sandy soil.** Sand or loamy sand.

**Saturation.** Wetness characterized by zero or positive pressure of the soil water. Under conditions of saturation, the water will flow from the soil matrix into an unlined auger hole.

**Sawlogs.** Logs of suitable size and quality for the production of lumber.

**Scribner's log rule.** A method of estimating the number of board feet that can be cut from a log of a given diameter and length.

**Seasonal wetness** (in tables). The soil may be wet during the period of desired use. This usually occurs during the winter and early spring.

**Seasonally ponded** (in tables). Standing water on soils in closed depressions. The water is removed only by percolation or evapotranspiration. Generally occurs during the winter and early spring.

**Second bottom.** The first terrace above the normal flood plain (or first bottom) of a river.

**Seepage** (in tables). The movement of water through the soil. Seepage adversely affects the specified use.

**Sequum.** A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)

**Series, soil.** A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

**Shallow soil.** A soil that is 10 to 20 inches deep over bedrock or to other material that restricts the penetration of plant roots.

**Sheet erosion.** The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.

**Shoulder.** The position that forms the uppermost inclined surface near the top of a hillslope. It is a transition from backslope to summit. The surface is dominantly convex in profile and erosional in origin.

**Shrink-swell** (in tables). The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

**Side slope.** A geomorphic component of hills consisting of a laterally planar area of a hillside. The overland waterflow is predominantly parallel.

- Silt.** As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.
- Site curve (50-year).** A set of related curves on a graph that shows the average height of dominant or dominant and codominant trees for a range of ages on soils that differ in productivity. Each level is represented by a curve. The basis of the curves is the height of dominant or dominant and codominant trees at an index age of 50 years.
- Site curve (100-year).** A set of related curves on a graph that shows the average height of dominant or dominant and codominant trees for a range of ages on soils that differ in productivity. Each level is represented by a curve. The basis of the curves is the height of dominant or dominant and codominant trees at an index age of 100 years.
- Site index.** A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75.
- Skid trails.** Pathways along which logs are dragged to a common site for loading onto a logging truck.
- Slash.** The branches, treetops, reject logs, and broken or uprooted trees left on the ground after logging.
- Slickensides.** Polished and grooved surfaces produced by one mass sliding past another. In soils, slickensides may occur at the bases of slip surfaces on the steeper slopes; on faces of blocks, prisms, and columns; and in swelling clayey soils, where there is marked change in moisture content.
- Slick spot.** A small area of soil having a puddled, crusted, or smooth surface and an excess of exchangeable sodium. The soil generally is silty or clayey, is slippery when wet, and is low in productivity.
- Slope.** The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance. In this survey, classes for simple slopes are as follows:
- |                        |                       |
|------------------------|-----------------------|
| Level .....            | 0 to 1 percent        |
| Nearly level .....     | 1 to 3 percent        |
| Gently sloping .....   | 3 to 8 percent        |
| Moderately steep ..... | 8 to 15 percent       |
| Steep .....            | 15 to 35 percent      |
| Very steep .....       | 35 percent and higher |
- Slope (in tables).** Slope is great enough that special practices are required to ensure satisfactory performance of the soil for a specific use.
- Slow intake (in tables).** The slow movement of water into the soil.
- Small stones (in tables).** Rock fragments less than 3 inches (7.6 centimeters) in diameter. Small stones adversely affect the specified use of the soil.
- Sodicity.** The degree to which a soil is affected by exchangeable sodium. Sodicity is expressed as a sodium adsorption ratio (SAR) of a saturation extract, or the ratio of  $\text{Na}^+$  to  $\text{Ca}^{++} + \text{Mg}^{++}$ . The degrees of sodicity and their respective ratios are:
- |                |                |
|----------------|----------------|
| Slight .....   | less than 13:1 |
| Moderate ..... | 13-30:1        |
| Strong .....   | more than 30:1 |
- Sodium adsorption ratio (SAR).** A measure of the amount of sodium (Na) relative to calcium (Ca) and magnesium (Mg) in the water extract from saturated soil paste.

It is the ratio of the Na concentration divided by the square root of one-half of the Ca + Mg concentration.

**Soft bedrock.** Bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.

**Soil.** A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

**Soil separates.** Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes, in millimeters, of separates recognized in the United States are as follows:

Very coarse sand .....	2.0 to 1.0
Coarse sand .....	1.0 to 0.5
Medium sand .....	0.5 to 0.25
Fine sand .....	0.25 to 0.10
Very fine sand .....	0.10 to 0.05
Silt .....	0.05 to 0.002
Clay .....	less than 0.002

**Solum.** The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the material below the solum. The living roots and plant and animal activities are largely confined to the solum.

**Species.** A single, distinct kind of plant or animal having certain distinguishing characteristics.

**Stickiness (surface)** (in tables). The soil is slippery and sticky when wet and slow to dry.

**Stones.** Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter if rounded or 15 to 24 inches (38 to 60 centimeters) in length if flat.

**Stony.** Refers to a soil containing stones in numbers that interfere with or prevent tillage.

**Strath terrace.** A surface cut formed by the erosion of hard or semiconsolidated bedrock and thinly mantled with stream deposits.

**Stream channel.** The hollow bed where a natural stream of surface water flows or may flow; the deepest or central part of the bed, formed by the main current and covered more or less continuously by water.

**Stream terrace.** One of a series of platforms in a stream valley, flanking and more or less parallel to the stream channel. It originally formed near the level of the stream and is the dissected remnants of an abandoned flood plain, streambed, or valley floor that were produced during a former stage of erosion or deposition.

**Structure, soil.** The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grained* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

**Stubble mulch.** Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from wind erosion and water erosion after harvest, during preparation of a seedbed for the next crop, and during the early growing period of the new crop.

**Subsoil.** Technically, the B horizon; roughly, the part of the solum below plow depth.

**Substratum.** The part of the soil below the solum.

**Subsurface layer.** Technically, the E horizon. Generally refers to a leached horizon lighter in color and lower in content of organic matter than the overlying surface layer.

- Subsurface layer.** Any subsurface soil horizon (A, E, AB, or EB) below the surface layer.
- Surface layer.** The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer," or the "Ap horizon."
- Surface soil.** The A, E, AB, and EB horizons, considered collectively. It includes all subdivisions of these horizons.
- Terrace.** An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field generally is built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.
- Terrace (geologic).** An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea.
- Texture, soil.** The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay, and clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."
- Thin layer** (in tables). Otherwise suitable soil material that is too thin for the specified use.
- Tilth, soil.** The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.
- Toeslope.** The outermost inclined surface at the base of a hill; part of a footslope.
- Too acid** (in tables). The soil is so acid that growth of plants is restricted.
- Too clayey** (in tables). The soil is slippery and sticky when wet and slow to dry.
- Too sandy** (in tables). The soil is soft and loose, droughty, and low in fertility or is too fine to use as gravel.
- Topsoil.** The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.
- Trace elements.** Chemical elements, for example, zinc, cobalt, manganese, copper, and iron, in soils in extremely small amounts. They are essential to plant growth.
- Trafficability.** The degree to which a soil is capable of supporting vehicular traffic across a wide range in soil moisture conditions.
- Tread.** The relatively flat surface that was cut or built by stream or wave action.
- Tuff.** A compacted deposit that is 50 percent or more volcanic ash and dust.
- Upland.** Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.
- Very deep soil.** A soil that is more than 60 inches deep over bedrock or to other material that restricts the penetration of plant roots.
- Very shallow soil.** A soil that is less than 10 inches deep over bedrock or to other material that restricts the penetration of plant roots.
- Weathering.** All physical and chemical changes produced in rocks or other deposits at or near the earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the material.
- Wetness** (in tables). The soil is wet during the period of desired use.
- Wilting point (or permanent wilting point).** The moisture content of soil, on an oven-dry basis, at which a plant (specifically a sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.
- Windthrow.** The uprooting and tipping over of trees by the wind.

## Tables

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# Soil Survey of Union County, Arkansas

Table 1.--Temperature and Precipitation

[Recorded in the period 1971-2000 at El Dorado, Arkansas]

Month	Temperature						Precipitation				
	Average daily maximum	Average daily minimum	Average	2 years in 10 will have--		Average number of growing degree	Average	2 years in 10 will have--		Average number of days with 0.10 inch	Average snowfall
				Maximum temperature higher	Minimum temperature lower			Less than--	More than--		
	°F	°F	°F	°F	°F	Units	In	In	In		In
January----	54.2	32.9	43.5	78	11	191	4.92	2.71	7.14	7	1.0
February----	60.1	36.3	48.2	82	14	272	4.24	2.17	6.20	5	0.4
March-----	68.6	43.9	56.2	87	21	507	5.15	3.23	6.99	6	0.1
April-----	76.2	50.9	63.6	90	30	707	4.55	1.76	7.02	5	0.0
May-----	82.7	60.1	71.4	93	42	986	5.49	2.90	7.85	7	0.0
June-----	89.2	67.4	78.3	98	52	1,146	5.17	2.02	7.85	6	0.0
July-----	92.6	71.2	81.9	102	59	1,283	4.13	1.78	6.32	5	0.0
August-----	92.5	69.8	81.2	102	57	1,275	3.22	1.19	5.29	4	0.0
September---	86.7	63.5	75.1	100	42	1,052	3.29	1.31	4.94	4	0.0
October-----	77.0	51.6	64.3	92	32	752	4.33	1.24	7.28	5	0.0
November----	65.4	42.2	53.8	83	22	421	4.70	2.37	6.87	5	0.0
December----	57.2	35.6	46.4	78	12	246	4.80	2.18	7.39	6	0.1
Yearly:											
Average---	75.2	52.1	63.7	---	---	---	---	---	---	---	---
Extreme---	112	1	---	104	9	---	---	---	---	---	---
Total-----	---	---	---	---	---	8,819	54.01	44.29	62.69	65	1.5

\* A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (40 degrees F).

# Soil Survey of Union County, Arkansas

Table 2.--Freeze Dates in Spring and Fall

[Recorded in the period 1961-1995 at El Dorado, Arkansas]

Probability	Temperature		
	24 °F or lower	28 °F or lower	32 °F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	Mar. 18	Mar. 31	Apr. 11
2 years in 10 later than--	Mar. 10	Mar. 23	Apr. 6
5 years in 10 later than--	Feb. 23	Mar. 8	Mar. 28
First freezing temperature in fall:			
1 year in 10 earlier than--	Nov. 14	Nov. 3	Oct. 24
2 years in 10 earlier than--	Nov. 20	Nov. 7	Oct. 29
5 years in 10 earlier than--	Dec. 2	Nov. 17	Nov. 7

Table 3.--Growing Season

[Recorded for the period 1971-2000 at El Dorado,  
Arkansas]

Probability	Daily Minimum Temperature During growing season		
	Higher than 24 °F	Higher than 28 °F	Higher than 32 °F
	<i>Days</i>	<i>Days</i>	<i>Days</i>
9 years in 10	260	220	200
8 years in 10	269	231	208
5 years in 10	287	251	224
2 years in 10	305	272	239
1 year in 10	314	282	247

# Soil Survey of Union County, Arkansas

Table 4.--Acreage and Proportionate Extent of the Soils

Map symbol	Soil name	Acres	Percent
AaA	Amy silt loam, 0 to 1 percent slopes, rarely flooded-----	21,399	3.2
AgB	Amy-Gurdon complex, 0 to 3 percent slopes, rarely flooded-----	5,988	0.9
AnC	Angie fine sandy loam, 1 to 8 percent slopes-----	713	0.1
AtA	Aquents, 0 to 1 percent slopes, rarely flooded-----	252	*
BbA	Bibb fine sandy loam, 0 to 1 percent slopes, frequently flooded-----	22,425	3.3
BrC	Briley loamy fine sand, 1 to 8 percent slopes-----	3,412	0.5
DAM	Dam-----	30	*
DdC	Darden loamy fine sand, 1 to 8 percent slopes-----	10,862	1.6
DdD	Darden loamy fine sand, 8 to 15 percent slopes-----	1,697	0.3
GrB	Gurdon silt loam, 0 to 3 percent slopes, rarely flooded-----	4,053	0.6
GyA	Guyton silt loam, 0 to 1 percent slopes, frequently flooded-----	103,830	15.4
HaC	Harleston fine sandy loam, 1 to 8 percent slopes-----	29,050	4.3
LVS	Levee-----	39	*
OfA	Oil-waste land-Fluvaquents complex, 0 to 1 percent slopes, frequently flooded-----	5,213	0.8
RuB	Ruston fine sandy loam, 1 to 3 percent slopes-----	5,363	0.8
RwC	Rosalie-Warnock complex, 1 to 8 percent slopes-----	19,648	2.9
SaC	Sacul fine sandy loam, 1 to 8 percent slopes-----	25,397	3.8
SaD	Sacul fine sandy loam, 8 to 15 percent slopes-----	12,277	1.8
SaE	Sacul fine sandy loam, 15 to 30 percent slopes-----	20,026	3.0
ScC	Sacul-Sawyer complex, 1 to 8 percent slopes-----	176,645	26.1
ScD	Sacul-Sawyer complex, 8 to 15 percent slopes-----	27,350	4.0
SeC	Sawyer very fine sandy loam, 1 to 8 percent slopes-----	23,191	3.4
SmC	Smithdale fine sandy loam, 3 to 8 percent slopes-----	14,850	2.2
SmD	Smithdale fine sandy loam, 8 to 15 percent slopes-----	6,758	1.0
SmE	Smithdale fine sandy loam, 15 to 30 percent slopes-----	4,693	0.7
StB	Smithton fine sandy loam, 0 to 2 percent slopes-----	21,128	3.1
TrB	Trebloc silt loam, 0 to 2 percent slopes-----	1,953	0.3
UnA	Una silty clay loam, 0 to 1 percent slopes, frequently flooded-----	24,001	3.6
UpA	Una silty clay loam, 0 to 1 percent slopes, ponded-----	14,987	2.2
W	Water-----	6,475	1.0
WaC	Warnock fine sandy loam, 1 to 7 percent slopes-----	17,566	2.6
Wsc	Warnock-Smithdale complex, 1 to 7 percent slopes-----	44,422	6.6
	Total-----	675,693	100.0

\* Less than 0.1 percent.

# Soil Survey of Union County, Arkansas

Table 5.--Land Capability and Yields per Acre of Crops and Pasture

[Yields are those that can be expected under a high level of management. They are for nonirrigated areas. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil]

Map symbol and soil name	Land capability	Bahiagrass	Common bermudagrass	Improved bermudagrass	Soybeans	Tall fescue
		AUM	AUM	AUM	Bu	AUM
AaA: Amy-----	3w	7.5	6.0	7.0	25.0	6.5
AgB: Amy----- Gurdon-----	3w 2w	7.5	6.0	7.0	25.0	6.5
AnC: Angie-----	3e	7.5	5.0	12.0	25.0	---
AtA: Aquents-----	5w	---	---	---	---	---
BbA: Bibb-----	5w	---	---	---	---	8.0
BrC: Briley-----	3e	---	---	9.0	---	---
DAM: Dam-----	---	---	---	---	---	---
DdC: Darden-----	4s	---	---	6.5	---	---
DdD: Darden-----	6e	---	---	6.0	---	---
GrB: Gurdon-----	2e	8.0	7.0	8.5	30.0	7.0
GyA: Guyton-----	5w	---	4.0	---	---	---
HaC: Harleston-----	3e	8.5	---	10.5	30.0	---
LVS: Levee-----	---	---	---	---	---	---
OfA: Oil-waste land----- Fluvaquents-----	8s 7s	---	---	---	---	---
RuB: Ruston-----	2e	9.5	5.5	12.0	30.0	---
RwC: Rosalie----- Warnock-----	3s 3e	---	5.5	6.5	20.0	---
SaC: Sacul-----	4e	7.5	6.5	7.5	---	---
SaD: Sacul-----	6e	6.5	5.5	7.0	---	---
SaE: Sacul-----	7e	---	---	---	---	---
ScC: Sacul----- Sawyer-----	4e 3e	7.5	6.5	7.5	---	---
ScD: Sacul----- Sawyer-----	6e 4e	6.5	5.5	7.0	---	---

# Soil Survey of Union County, Arkansas

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability	Bahiagrass	Common bermudagrass	Improved bermudagrass	Soybeans	Tall fescue
		<i>AUM</i>	<i>AUM</i>	<i>AUM</i>	<i>Bu</i>	<i>AUM</i>
SeC: Sawyer-----	3e	---	7.0	9.0	20.0	7.0
SmC: Smithdale-----	3e	8.0	5.5	9.0	30.0	---
SmD: Smithdale-----	4e	8.0	5.0	9.0	25.0	---
SmE: Smithdale-----	6e	---	---	---	---	---
StB: Smithton-----	3w	7.5	7.0	8.0	25.0	7.0
TrB: Trebloc-----	3w	8.0	---	8.0	25.0	8.0
UnA: Una-----	5w	---	7.0	---	20.0	7.0
UpA: Una-----	6w	---	7.0	---	20.0	7.0
W: Water.						
WaC: Warnock-----	3e	7.0	7.0	8.0	20.0	---
WsC: Warnock----- Smithdale-----	3e 3e	7.0	7.0	8.0	20.0	---

# Soil Survey of Union County, Arkansas

Table 6.--Forestland Productivity

Map symbol and soil name	Potential productivity			Trees to manage
	Common trees	Site index	Volume of wood fiber  <i>cu ft/ac</i>	
AaA: Amy-----	Loblolly pine----- Shortleaf pine----- Sweetgum-----	90 80 90	129 --- ---	Loblolly pine, shortleaf pine
AgB: Amy-----	Loblolly pine----- Shortleaf pine----- Sweetgum-----	90 80 90	129 --- ---	Loblolly pine, shortleaf pine
Gurdon-----	Loblolly pine----- Shortleaf pine----- Shumard's oak----- Sweetgum----- Willow oak-----	95 85 --- 95 ---	143 --- --- --- ---	Cherrybark oak, loblolly pine, shortleaf pine, Shumard's oak
AnC: Angie-----	Loblolly pine----- Shortleaf pine----- Sweetgum-----	92 88 ---	136 --- ---	Loblolly pine
AtA: Aquent.				
BbA: Bibb-----	Blackgum----- Loblolly pine----- Sweetgum----- water oak----- Willow oak-----	--- 90 90 90 90	--- 129 --- --- 86	Loblolly pine, water oak, willow oak
BrC: Briley-----	Loblolly pine----- Shortleaf pine-----	80 70	114 ---	Loblolly pine
DAM: Dam.				
DdC: Darden-----	Loblolly pine----- Shortleaf pine-----	80 70	114 ---	Loblolly pine
DdD: Darden-----	Loblolly pine----- Shortleaf pine-----	80 70	114 ---	Loblolly pine
GrB: Gurdon-----	Loblolly pine----- Shortleaf pine----- Shumard's oak----- Sweetgum----- Willow oak-----	95 85 --- 95 ---	143 --- --- --- ---	Cherrybark oak, loblolly pine, shortleaf pine, Shumard's oak
GyA: Guyton-----	Black willow----- Green ash----- Nuttall oak----- Sugarberry----- Sweetgum----- Willow oak-----	--- 100 --- --- --- 90	--- 82 --- --- --- 86	Green ash, Nuttall oak
HaC: Harleston-----	Loblolly pine----- Shortleaf pine----- Sweetgum-----	90 80 75	129 --- ---	Loblolly pine, shortleaf pine
LVS: Levee.				



# Soil Survey of Union County, Arkansas

Table 6.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity			Trees to manage
	Common trees	Site index	Volume of wood fiber  cu ft/ac	
OfA: Oil-waste land. Fluvaquents.				
RuB:				
Ruston-----	Hickory-----	---	---	Loblolly pine, shortleaf pine
	Loblolly pine-----	90	129	
	Post oak-----	---	---	
	Shortleaf pine-----	75	---	
	Southern red oak----	---	---	
	Sweetgum-----	---	---	
RwC:				
Rosalie-----	Loblolly pine-----	80	114	Loblolly pine
	Shortleaf pine-----	70	---	
Warnock-----	Loblolly pine-----	86	123	Loblolly pine, shortleaf pine
	Shortleaf pine-----	77	---	
SaC:				
Sacul-----	Loblolly pine-----	90	129	Loblolly pine, shortleaf pine
	Shortleaf pine-----	80	---	
SaD:				
Sacul-----	Loblolly pine-----	90	129	Loblolly pine, shortleaf pine
	Shortleaf pine-----	80	---	
SaE:				
Sacul-----	Loblolly pine-----	90	129	Loblolly pine, shortleaf pine
	Shortleaf pine-----	80	---	
ScC:				
Sacul-----	Loblolly pine-----	90	129	Loblolly pine, shortleaf pine
	Shortleaf pine-----	84	---	
Sawyer-----	Loblolly pine-----	95	143	Loblolly pine, shortleaf pine
	Shortleaf pine-----	83	---	
ScD:				
Sacul-----	Loblolly pine-----	90	129	Loblolly pine, shortleaf pine
	Shortleaf pine-----	80	---	
Sawyer-----	Loblolly pine-----	95	143	Loblolly pine, shortleaf pine
	Shortleaf pine-----	80	---	
SeC:				
Sawyer-----	Loblolly pine-----	95	143	Loblolly pine, shortleaf pine
	Shortleaf pine-----	83	---	
SmC:				
Smithdale-----	Loblolly pine-----	86	123	Loblolly pine
	Shortleaf pine-----	69	---	
SmD:				
Smithdale-----	Loblolly pine-----	86	123	Loblolly pine
	Shortleaf pine-----	69	---	
SmE:				
Smithdale-----	Loblolly pine-----	86	123	Loblolly pine
	Shortleaf pine-----	69	---	
StB:				
Smithton-----	Cherrybark oak-----	85	101	Cherrybark oak, loblolly pine, shortleaf pine, water oak
	Loblolly pine-----	86	123	
	Shortleaf pine-----	76	---	
	Sweetgum-----	86	---	
	Water oak-----	85	---	

# Soil Survey of Union County, Arkansas

Table 6.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity			Trees to manage
	Common trees	Site index	Volume of wood fiber  <i>cu ft/ac</i>	
TrB: Trebloc-----	Loblolly pine----- Sweetgum----- Water oak----- Willow oak-----	90 90 85 80	129 106 80 74	Green ash, loblolly pine, Nuttall oak
UnA: Una-----	Cherrybark oak----- Green ash----- Nuttall oak----- Sweetgum----- Water oak----- Water tupelo----- Willow oak-----	90 75 95 90 90 80 90	115 --- --- 106 --- --- 86	Cherrybark oak, green ash, Nuttall oak, water oak, willow oak
UpA: Una-----	Cherrybark oak----- Green ash----- Nuttall oak----- Sweetgum----- Water oak----- Water tupelo----- Willow oak-----	90 75 95 90 90 80 90	115 --- --- 106 --- --- 86	Cherrybark oak, green ash, Nuttall oak, water oak, willow oak
W: Water.				
WaC: Warnock-----	Loblolly pine----- Shortleaf pine-----	86 77	123 ---	Loblolly pine, shortleaf pine
WsC: Warnock-----	Loblolly pine----- Shortleaf pine-----	86 77	123 ---	Loblolly pine, shortleaf pine
Smithdale-----	Loblolly pine----- Shortleaf pine-----	86 69	123 ---	Loblolly pine

Table 7a.--Forestland Management (Part 1)

[The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table]

Map symbol and soil name	Hand planting		Mechanical planting		Use of harvesting equipment		Mechanical site preparation (surface)		Roads (natural surface)	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
AaA: Amy-----	Moderately limited ~seasonal wetness (moderately limited)	0.60	Moderately limited ~seasonal wetness (moderately limited)	0.60	Limited ~seasonal wetness (limited) ~low strength (moderately limited)	0.91  0.50	Limited ~seasonal wetness (limited)	0.91	Limited ~seasonal wetness (limited) ~low strength (moderately limited)	0.91  0.50
AgB: Amy-----	Moderately limited ~seasonal wetness (moderately limited)	0.60	Moderately limited ~seasonal wetness (moderately limited)	0.60	Limited ~seasonal wetness (limited) ~low strength (moderately limited)	0.91  0.50	Limited ~seasonal wetness (limited)	0.91	Limited ~seasonal wetness (limited) ~low strength (moderately limited)	0.91  0.50
Gurdon-----	Not limited		Not limited		Moderately limited ~low strength (moderately limited) ~seasonal wetness (slightly limited)	0.50  0.29	Slightly limited ~seasonal wetness (slightly limited)	0.29	Moderately limited ~low strength (moderately limited) ~seasonal wetness (slightly limited)	0.50  0.29
AnC: Angie-----	Not limited		Not limited		Not limited		Not limited		Not Limited	
AtA: Aquents-----	Not rated		Not rated		Not rated		Not rated		Not rated	
BbA: Bibb-----	Moderately limited ~seasonal wetness (moderately limited)	0.60	Moderately limited ~seasonal wetness (moderately limited)	0.60	Limited ~seasonal wetness (limited)	0.76	Limited ~seasonal wetness (limited)	0.76	Very limited ~flooding (very limited) ~seasonal wetness (limited)	1.00  0.76
BrC: Briley-----	Not limited		Not limited		Not limited		Not limited		Not Limited	
DAM: Dam-----	Not rated		Not rated		Not rated		Not rated		Not rated	
DdC: Darden-----	Not limited		Not limited		Not limited		Not limited		Not Limited	
DdD: Darden-----	Not limited		Moderately limited ~slope (moderately limited)	0.47	Not limited		Not limited		Limited ~slope (limited)	0.76

Table 7a.--Forestland Management (Part 1)--Continued

Map symbol and soil name	Hand planting		Mechanical planting		Use of harvesting equipment		Mechanical site preparation (surface)		Roads (natural surface)	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
GrB: Gurdon-----	Not limited		Not limited		Moderately limited ~low strength (moderately limited) ~seasonal wetness (slightly limited)	0.50 0.29	Slightly limited ~seasonal wetness (slightly limited)	0.29	Moderately limited ~low strength (moderately limited) ~seasonal wetness (slightly limited)	0.50 0.29
GyA: Guyton-----	Moderately limited ~seasonal wetness (moderately limited)	0.60	Moderately limited ~seasonal wetness (moderately limited)	0.60	Limited ~seasonal wetness (limited) ~low strength (moderately limited)	0.91 0.50	Limited ~seasonal wetness (limited)	0.91	Very limited ~flooding (very limited) ~seasonal wetness (limited) ~low strength (moderately limited)	1.00 0.91 0.50
HaC: Harleston---	Not limited		Not limited		Slightly limited ~seasonal wetness (slightly limited)	0.10	Slightly limited ~seasonal wetness (slightly limited)	0.10	Slightly limited ~seasonal wetness (slightly limited)	0.10
LVS: Levee-----	Not rated		Not rated		Not rated		Not rated		Not rated	
OfA: Oil-waste land-----	Not rated		Not rated		Not rated		Not rated		Not rated	
Fluvaquents-	Not rated		Not rated		Not rated		Not rated		Not Rated	
RuB: Ruston-----	Not limited		Not limited		Not limited		Not limited		Not Limited	
RwC: Rosalie-----	Moderately limited ~very sandy (surface) (moderately limited)	0.50	Moderately limited ~very sandy (surface) (moderately limited)	0.50	Moderately limited ~very sandy (surface) (moderately limited)	0.50	Not limited		Moderately limited ~very sandy (surface) (moderately limited)	0.50
Warnock----	Not limited		Not limited		Not limited		Not limited		Not Limited	
SaC: Sacul-----	Not limited		Not limited		Not limited		Not limited		Not Limited	
SaD: Sacul-----	Not limited		Moderately limited ~slope (moderately limited)	0.47	Not limited		Not limited		Limited ~slope (limited)	0.76
SaE: Sacul-----	Slightly limited ~slope (slightly limited)	0.11	Limited ~slope (limited)	0.91	Moderately limited ~slope (moderately limited)	0.48	Moderately limited ~slope (moderately limited)	0.48	Very limited ~slope (very limited)	1.00

Table 7a.--Forestland Management (Part 1)--Continued

Map symbol and soil name	Hand planting		Mechanical planting		Use of harvesting equipment		Mechanical site preparation (surface)		Roads (natural surface)	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
ScC:										
Sacul-----	Not limited		Not limited		Not limited		Not limited		Not Limited	
Sawyer-----	Not limited		Not limited		Moderately limited ~low strength (moderately limited)	0.50	Slightly limited ~seasonal wetness (slightly limited)	0.20	Moderately limited ~low strength (moderately limited)	0.50
					~seasonal wetness (slightly limited)	0.20			~seasonal wetness (slightly limited)	0.20
ScD:										
Sacul-----	Not limited		Moderately limited ~slope (moderately limited)	0.47	Not limited		Not limited		Limited ~slope (limited)	0.76
Sawyer-----	Not limited		Moderately limited ~slope (moderately limited)	0.47	Moderately limited ~low strength (moderately limited)	0.50	Slightly limited ~seasonal wetness (slightly limited)	0.20	Limited ~slope (limited)	0.76
					~seasonal wetness (slightly limited)	0.20			~low strength (moderately limited)	0.50
									~seasonal wetness (slightly limited)	0.20
SeC:										
Sawyer-----	Not limited		Not limited		Moderately limited ~low strength (moderately limited)	0.50	Slightly limited ~seasonal wetness (slightly limited)	0.20	Moderately limited ~low strength (moderately limited)	0.50
					~seasonal wetness (slightly limited)	0.20			~seasonal wetness (slightly limited)	0.20
SmC:										
Smithdale---	Not limited		Slightly limited ~slope (slightly limited)	0.10	Not limited		Not limited		Not Limited	
SmD:										
Smithdale---	Not limited		Moderately limited ~slope (moderately limited)	0.47	Not limited		Not limited		Limited ~slope (limited)	0.76
SmE:										
Smithdale---	Slightly limited ~slope (slightly limited)	0.11	Limited ~slope (limited)	0.91	Moderately limited ~slope (moderately limited)	0.48	Moderately limited ~slope (moderately limited)	0.48	Very limited ~slope (very limited)	1.00
StB:										
Smithton---	Moderately limited ~seasonal wetness (moderately limited)	0.60	Moderately limited ~seasonal wetness (moderately limited)	0.60	Limited ~seasonal wetness (limited)	0.91	Limited ~seasonal wetness (limited)	0.91	Limited ~seasonal wetness (limited)	0.91

Table 7a.--Forestland Management (Part 1)--Continued

Map symbol and soil name	Hand planting		Mechanical planting		Use of harvesting equipment		Mechanical site preparation (surface)		Roads (natural surface)	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
TrB: Trebloc-----	Moderately limited ~seasonal wetness (moderately limited)	0.60	Moderately limited ~seasonal wetness (moderately limited)	0.60	Limited ~seasonal wetness (limited) ~low strength (moderately limited)	0.76 0.50	Limited ~seasonal wetness (limited)	0.76	Limited ~seasonal wetness (limited) ~low strength (moderately limited)	0.76 0.50
UnA: Una-----	Moderately limited ~seasonal wetness (moderately limited) ~stickiness (surface) (moderately limited)	0.60 0.50	Moderately limited ~seasonal wetness (moderately limited) ~stickiness (surface) (moderately limited)	0.60 0.50	Limited ~seasonal wetness (limited) ~stickiness (surface) (moderately limited) ~low strength (moderately limited)	0.76 0.50 0.50 0.50	Limited ~seasonal wetness (limited) ~stickiness (surface) (moderately limited)	0.76 0.50	Very limited ~flooding (very limited) ~seasonal wetness (limited) ~stickiness (surface) (moderately limited)	1.00 0.76 0.50
UpA: Una-----	Limited ~seasonally ponded (limited) ~seasonal wetness (moderately limited) ~stickiness (surface) (moderately limited)	0.80 0.60 0.50	Limited ~seasonally ponded (limited) ~seasonal wetness (moderately limited) ~stickiness (surface) (moderately limited)	0.80 0.60 0.50	Limited ~seasonal wetness (limited) ~seasonally ponded (limited) ~stickiness (surface) (moderately limited)	0.91 0.80 0.50	Limited ~seasonal wetness (limited) ~seasonally ponded (limited) ~stickiness (surface) (moderately limited)	0.91 0.80 0.50	Very limited ~ponded (wetness) (very limited) ~flooding (very limited) ~seasonal wetness (limited)	1.00 1.00 0.91
W: Water-----	Not rated		Not rated		Not rated		Not rated		Not rated	
WaC: Warnock-----	Not limited		Not limited		Not limited		Not limited		Not Limited	
WsC: Warnock-----	Not limited		Not limited		Not limited		Not limited		Not Limited	
Smithdale---	Not limited		Slightly limited ~slope (slightly limited)	0.20	Not limited		Not limited		Slightly limited ~slope (slightly limited)	0.15



Table 7b.--Forestland Management (Part 2)

[The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table]

Map symbol and soil name	Erosion on roads and trails		Off-road or off-trail erosion		Soil rutting		Log landings		Seedling survival	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
AaA: Amy-----	Slightly limited ~slope/erodibility (slightly limited)	0.06	Slightly limited ~slope/erodibility (slightly limited)	0.01	Limited ~seasonal wetness (limited) ~low strength (limited)	0.91  0.80	Limited ~seasonal wetness (limited) ~low strength (moderately limited)	0.91  0.50	Limited ~seasonal wetness (limited)	0.91
AgB: Amy-----	Slightly limited ~slope/erodibility (slightly limited)	0.22	Slightly limited ~slope/erodibility (slightly limited)	0.05	Limited ~seasonal wetness (limited) ~low strength (limited)	0.91  0.80	Limited ~seasonal wetness (limited) ~low strength (moderately limited)	0.91  0.50	Limited ~seasonal wetness (limited)	0.91
Gurdon-----	Slightly limited ~slope/erodibility (slightly limited)	0.22	Slightly limited ~slope/erodibility (slightly limited)	0.05	Limited ~low strength (limited) ~seasonal wetness (slightly limited)	0.80  0.29	Moderately limited ~low strength (moderately limited) ~seasonal wetness (slightly limited)	0.50  0.29	Not limited	
AnC: Angie-----	Moderately limited ~slope/erodibility (moderately limited)	0.56	Slightly limited ~slope/erodibility (slightly limited)	0.10	Moderately limited ~low strength (moderately limited)	0.50	Not limited		Not limited	
AtA: Aquents-----	Not rated		Not rated		Not Rated		Not rated		Not Rated	
BbA: Bibb-----	Slightly limited ~slope/erodibility (slightly limited)	0.03	Slightly limited ~slope/erodibility (slightly limited)	0.01	Limited ~seasonal wetness (limited) ~low strength (moderately limited)	0.76  0.50	Very limited ~flooding (very limited) ~seasonal wetness (limited)	1.00  0.76	Limited ~flooding (limited) ~seasonal wetness (limited)	0.90  0.76
BrC: Briley-----	Moderately limited ~slope/erodibility (moderately limited)	0.31	Slightly limited ~slope/erodibility (slightly limited)	0.10	Moderately limited ~low strength (moderately limited)	0.50	Not limited		Slightly limited ~droughty (slightly limited)	0.08
DAM: Dam-----	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 7b.--Forestland Management (Part 2)--Continued

Map symbol and soil name	Erosion on roads and trails		Off-road or off-trail erosion		Soil rutting		Log landings		Seedling survival	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
DdC: Darden-----	Moderately limited ~slope/erodibility (moderately limited)	0.31	Slightly limited ~slope/erodibility (slightly limited)	0.10	Moderately limited ~low strength (moderately limited)	0.50	Not limited		Limited ~droughty (limited)	0.67
DdD: Darden-----	Limited ~slope/erodibility (limited)	0.75	Slightly limited ~slope/erodibility (slightly limited)	0.24	Moderately limited ~low strength (moderately limited)	0.50	Limited ~slope (limited)	0.76	Limited ~droughty (limited)	0.67
GrB: Gurdon-----	Slightly limited ~slope/erodibility (slightly limited)	0.22	Slightly limited ~slope/erodibility (slightly limited)	0.05	Limited ~low strength (limited) ~seasonal wetness (slightly limited)	0.80 0.29	Moderately limited ~low strength (moderately limited) ~seasonal wetness (slightly limited)	0.50 0.29	Not limited	
GyA: Guyton-----	Slightly limited ~slope/erodibility (slightly limited)	0.06	Slightly limited ~slope/erodibility (slightly limited)	0.01	Limited ~seasonal wetness (limited) ~low strength (limited)	0.91 0.80	Very limited ~flooding (very limited) ~seasonal wetness (limited) ~low strength (moderately limited)	1.00 0.91 0.50	Limited ~seasonal wetness (limited) ~flooding (limited)	0.91 0.90
HaC: Harleston---	Moderately limited ~slope/erodibility (moderately limited)	0.31	Slightly limited ~slope/erodibility (slightly limited)	0.10	Moderately limited ~low strength (moderately limited) ~seasonal wetness (slightly limited)	0.50 0.10	Slightly limited ~seasonal wetness (slightly limited)	0.10	Not limited	
LVS: Levee-----	Not rated		Not rated		Not rated		Not rated		Not rated	
OfA: Oil-waste land-----	Not rated		Not rated		Not rated		Not rated		Not rated	
Fluvaquents-	Not rated		Not rated		Not rated		Not rated		Not rated	
RuB: Ruston-----	Slightly limited ~slope/erodibility (slightly limited)	0.22	Slightly limited ~slope/erodibility (slightly limited)	0.04	Moderately limited ~low strength (moderately limited)	0.50	Not limited		Not limited	

Table 7b.--Forestland Management (Part 2)--Continued

Map symbol and soil name	Erosion on roads and trails		Off-road or off-trail erosion		Soil rutting		Log landings		Seedling survival	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
RwC: Rosalie-----	Moderately limited ~slope/erodibility (moderately limited)	0.31	Slightly limited ~slope/erodibility (slightly limited)	0.10	Moderately limited ~low strength (moderately limited)	0.50	Moderately limited ~very sandy (surface) (moderately limited)	0.50	Moderately limited ~droughty (moderately limited)	0.31
Warnock-----	Moderately limited ~slope/erodibility (moderately limited)	0.56	Slightly limited ~slope/erodibility (slightly limited)	0.10	Moderately limited ~low strength (moderately limited)	0.50	Not limited		Not limited	
SaC: Sacul-----	Moderately limited ~slope/erodibility (moderately limited)	0.56	Slightly limited ~slope/erodibility (slightly limited)	0.10	Moderately limited ~low strength (moderately limited)	0.50	Not limited		Not limited	
SaD: Sacul-----	Very limited ~slope/erodibility (very limited)	1.00	Slightly limited ~slope/erodibility (slightly limited)	0.24	Moderately limited ~low strength (moderately limited)	0.50	Limited ~slope (limited)	0.76	Not limited	
SaE: Sacul-----	Very limited ~slope/erodibility (very limited)	1.00	Moderately limited ~slope/erodibility (moderately limited)	0.45	Moderately limited ~low strength (moderately limited)	0.50	Very limited ~slope (very limited)	1.00	Not limited	
ScC: Sacul-----	Moderately limited ~slope/erodibility (moderately limited)	0.56	Slightly limited ~slope/erodibility (slightly limited)	0.10	Moderately limited ~low strength (moderately limited)	0.50	Not limited		Not limited	
Sawyer-----	Moderately limited ~slope/erodibility (moderately limited)	0.56	Slightly limited ~slope/erodibility (slightly limited)	0.12	Limited ~low strength (limited) ~seasonal wetness (slightly limited)	0.80 0.20	Moderately limited ~low strength (moderately limited) ~seasonal wetness (slightly limited)	0.50 0.20	Not limited	
ScD: Sacul-----	Very limited ~slope/erodibility (very limited)	1.00	Slightly limited ~slope/erodibility (slightly limited)	0.24	Moderately limited ~low strength (moderately limited)	0.50	Limited ~slope (limited)	0.76	Not limited	
Sawyer-----	Very limited ~slope/erodibility (very limited)	1.00	Slightly limited ~slope/erodibility (slightly limited)	0.29	Limited ~low strength (limited) ~seasonal wetness (slightly limited)	0.80 0.20	Limited ~slope (limited) ~low strength (moderately limited) ~seasonal wetness (slightly limited)	0.76 0.50 0.20	Not limited	

Table 7b.--Forestland Management (Part 2)--Continued

Map symbol and soil name	Erosion on roads and trails		Off-road or off-trail erosion		Soil rutting		Log landings		Seedling survival	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
SeC: Sawyer-----	Moderately limited ~slope/erodibility (moderately limited)	0.56	Slightly limited ~slope/erodibility (slightly limited)	0.12	Limited ~low strength (limited) ~seasonal wetness (slightly limited)	0.80 0.20	Moderately limited ~low strength (moderately limited) ~seasonal wetness (slightly limited)	0.50 0.20	Not limited	
SmC: Smithdale---	Limited ~slope/erodibility (limited)	0.67	Slightly limited ~slope/erodibility (slightly limited)	0.12	Moderately limited ~low strength (moderately limited)	0.50	Not limited		Not limited	
SmD: Smithdale---	Very limited ~slope/erodibility (very limited)	1.00	Slightly limited ~slope/erodibility (slightly limited)	0.24	Moderately limited ~low strength (moderately limited)	0.50	Limited ~slope (limited)	0.76	Not limited	
SmE: Smithdale---	Very limited ~slope/erodibility (very limited)	1.00	Moderately limited ~slope/erodibility (moderately limited)	0.45	Moderately limited ~low strength (moderately limited)	0.50	Very limited ~slope (very limited)	1.00	Not limited	
StB: Smithton---	Slightly limited ~slope/erodibility (slightly limited)	0.11	Slightly limited ~slope/erodibility (slightly limited)	0.02	Limited ~seasonal wetness (limited) ~low strength (moderately limited)	0.91 0.50	Limited ~seasonal wetness (limited)	0.91	Limited ~seasonal wetness (limited)	0.91
TrB: Trebloc-----	Slightly limited ~slope/erodibility (slightly limited)	0.11	Slightly limited ~slope/erodibility (slightly limited)	0.02	Limited ~low strength (limited) ~seasonal wetness (limited)	0.80 0.76	Limited ~seasonal wetness (limited) ~low strength (moderately limited)	0.76 0.50	Limited ~seasonal wetness (limited)	0.76
UnA: Una-----	Slightly limited ~slope/erodibility (slightly limited)	0.06	Slightly limited ~slope/erodibility (slightly limited)	0.01	Limited ~low strength (limited) ~seasonal wetness (limited)	0.80 0.76	Very limited ~flooding (very limited) ~seasonal wetness (limited) ~stickiness (surface) (moderately limited)	1.00 0.76 0.50	Limited ~flooding (limited) ~seasonal wetness (limited)	0.90 0.76

Table 7b.--Forestland Management (Part 2)--Continued

Map symbol and soil name	Erosion on roads and trails		Off-road or off-trail erosion		Soil rutting		Log landings		Seedling survival	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
UpA: Una-----	Slightly limited ~slope/erodibility (slightly limited)	0.06	Slightly limited ~slope/erodibility (slightly limited)	0.01	Limited ~seasonal wetness (limited) ~low strength (limited)	0.91 0.80	Very limited ~flooding (very limited) ~seasonal wetness (limited) ~seasonally ponded (limited)	1.00 0.91 0.80	Limited ~seasonal wetness (limited) ~flooding (limited)	0.91 0.90
W: Water-----	Not rated		Not rated		Not rated		Not rated		Not rated	
WaC: Warnock----	Moderately limited ~slope/erodibility (moderately limited)	0.44	Slightly limited ~slope/erodibility (slightly limited)	0.08	Moderately limited ~low strength (moderately limited)	0.50	Not limited		Not limited	
WsC: Warnock----	Moderately limited ~slope/erodibility (moderately limited)	0.44	Slightly limited ~slope/erodibility (slightly limited)	0.08	Moderately limited ~low strength (moderately limited)	0.50	Not limited		Not limited	
Smithdale---	Moderately limited ~slope/erodibility (moderately limited)	0.44	Slightly limited ~slope/erodibility (slightly limited)	0.08	Moderately limited ~low strength (moderately limited)	0.50	Not limited		Not limited	

Table 8.--Recreational Development

[The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table]

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds		Paths and trails	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
AaA: Amy-----	Very limited ~wetness (very limited) ~flooding (rare) (limited) ~percs slowly (moderately limited)	1.00  0.90  0.39	Very limited ~wetness (very limited) ~percs slowly (moderately limited)	1.00  0.39	Very limited ~wetness (very limited) ~percs slowly (moderately limited)	1.00  0.39	Very limited ~wetness (very limited)	1.00
AgB: Amy-----	Very limited ~wetness (very limited) ~flooding (rare) (limited) ~percs slowly (moderately limited)	1.00  0.90  0.39	Very limited ~wetness (very limited) ~percs slowly (moderately limited)	1.00  0.39	Very limited ~wetness (very limited) ~percs slowly (moderately limited)	1.00  0.39	Very limited ~wetness (very limited)	1.00
Gurdon-----	Limited ~wetness (limited) ~flooding (rare) (limited) ~too acid (slightly limited)	0.96  0.90  0.12	Limited ~wetness (limited) ~too acid (slightly limited)	0.60  0.12	Limited ~wetness (limited) ~too acid (slightly limited)	0.96  0.12	Limited ~wetness (limited)	0.60
AnC: Angie-----	Moderately limited ~percs slowly (moderately limited)	0.39	Moderately limited ~percs slowly (moderately limited)	0.39	Limited ~slope (limited) ~percs slowly (moderately limited)	0.78  0.39	Not limited	
AtA: Aquents-----	Not rated		Not rated		Not rated		Not rated	
BbA: Bibb-----	Very limited ~flooding (very limited) ~wetness (very limited) ~too acid (slightly limited)	1.00  1.00  0.24	Very limited ~wetness (very limited) ~flooding (moderately limited) ~too acid (slightly limited)	1.00  0.60  0.24	Very limited ~flooding (very limited) ~wetness (very limited) ~too acid (slightly limited)	1.00  1.00  0.24	Very limited ~wetness (very limited) ~flooding (moderately limited)	1.00  0.60



Table 8.--Recreational Development--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds		Paths and trails	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
BrC: Briley-----	Moderately limited ~too sandy (moderately limited)	0.50	Moderately limited ~too sandy (moderately limited)	0.50	Limited ~slope (limited) ~too sandy (moderately limited)	0.78  0.50	Moderately limited ~too sandy (moderately limited)	0.50
DAM: Dam-----	Not rated		Not rated		Not rated		Not rated	
DdC: Darden-----	Moderately limited ~too sandy (moderately limited)	0.50	Moderately limited ~too sandy (moderately limited)	0.50	Limited ~slope (limited) ~too sandy (moderately limited)	0.78  0.50	Moderately limited ~too sandy (moderately limited)	0.50
DdD: Darden-----	Limited ~slope (limited) ~too sandy (moderately limited)	0.63  0.50	Limited ~slope (limited) ~too sandy (moderately limited)	0.63  0.50	Very limited ~slope (very limited) ~too sandy (moderately limited)	1.00  0.50	Moderately limited ~too sandy (moderately limited)	0.50
GrB: Gurdon-----	Limited ~wetness (limited) ~flooding (rare) (limited) ~too acid (slightly limited)	0.96  0.90  0.12	Limited ~wetness (limited) ~too acid (slightly limited)	0.60  0.12	Limited ~wetness (limited) ~too acid (slightly limited)	0.96  0.12	Limited ~wetness (limited)	0.60
GyA: Guyton-----	Very limited ~flooding (very limited) ~wetness (very limited) ~percs slowly (moderately limited)	1.00  1.00  0.39	Very limited ~wetness (very limited) ~flooding (moderately limited) ~percs slowly (moderately limited)	1.00  0.60  0.39	Very limited ~flooding (very limited) ~wetness (very limited) ~percs slowly (moderately limited)	1.00  1.00  0.39	Very limited ~wetness (very limited) ~flooding (moderately limited)	1.00  0.60
HaC: Harleston-----	Slightly limited ~too acid (slightly limited)	0.24	Slightly limited ~too acid (slightly limited)	0.24	Limited ~slope (limited) ~too acid (slightly limited)	0.78  0.24	Not limited	
LVS: Levee-----	Not rated		Not rated		Not rated		Not rated	

Table 8.--Recreational Development--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds		Paths and trails	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
OfA:								
Oil-waste land-----	Not rated		Not rated		Not rated		Not rated	
Fluvaquents-----	Not rated		Not rated		Not rated		Not rated	
RuB:								
Ruston-----	Not limited		Not limited		Not limited		Not limited	
RwC:								
Rosalie-----	Moderately limited ~too sandy (moderately limited)	0.50	Moderately limited ~too sandy (moderately limited)	0.50	Limited ~slope (limited) ~too sandy (moderately limited)	0.78 0.50	Moderately limited ~too sandy (moderately limited)	0.50
Warnock-----	Slightly limited ~too acid (slightly limited)	0.24	Slightly limited ~too acid (slightly limited)	0.24	Limited ~slope (limited) ~too acid (slightly limited)	0.78 0.24	Not limited	
SaC:								
Sacul-----	Moderately limited ~percs slowly (moderately limited)	0.39	Moderately limited ~percs slowly (moderately limited)	0.39	Limited ~slope (limited) ~percs slowly (moderately limited) ~small stones (slightly limited)	0.78 0.39 0.15	Not limited	
SaD:								
Sacul-----	Limited ~slope (limited) ~percs slowly (moderately limited)	0.63 0.39	Limited ~slope (limited) ~percs slowly (moderately limited)	0.63 0.39	Very limited ~slope (very limited) ~percs slowly (moderately limited) ~small stones (slightly limited)	1.00 0.39 0.15	Not limited	
SaE:								
Sacul-----	Very limited ~slope (very limited) ~percs slowly (moderately limited)	1.00 0.39	Very limited ~slope (very limited) ~percs slowly (moderately limited)	1.00 0.39	Very limited ~slope (very limited) ~percs slowly (moderately limited) ~small stones (slightly limited)	1.00 0.39 0.15	Limited ~slope (limited)	0.75

Table 8.--Recreational Development--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds		Paths and trails	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
ScC:								
Sacul-----	Moderately limited ~percs slowly (moderately limited)	0.39	Moderately limited ~percs slowly (moderately limited)	0.39	Limited ~slope (limited) ~percs slowly (moderately limited)	0.78  0.39	Not limited	
Sawyer-----	Moderately limited ~wetness (moderately limited) ~percs slowly (moderately limited) ~too acid (slightly limited)	0.50  0.39  0.24	Moderately limited ~percs slowly (moderately limited) ~wetness (slightly limited) ~too acid (slightly limited)	0.39  0.28  0.24	Limited ~slope (limited) ~wetness (moderately limited) ~percs slowly (moderately limited)	0.78  0.50  0.39	Slightly limited ~wetness (slightly limited)	0.28
ScD:								
Sacul-----	Limited ~slope (limited) ~percs slowly (moderately limited)	0.63  0.39	Limited ~slope (limited) ~percs slowly (moderately limited)	0.63  0.39	Very limited ~slope (very limited) ~percs slowly (moderately limited)	1.00  0.39	Not limited	
Sawyer-----	Limited ~slope (limited) ~wetness (moderately limited) ~percs slowly (moderately limited)	0.63  0.50  0.39	Limited ~slope (limited) ~percs slowly (moderately limited) ~wetness (slightly limited)	0.63  0.39  0.28	Very limited ~slope (very limited) ~wetness (moderately limited) ~percs slowly (moderately limited)	1.00  0.50  0.39	Very limited ~erodes easily (very limited) ~wetness (slightly limited)	1.00  0.28
SeC:								
Sawyer-----	Moderately limited ~wetness (moderately limited) ~percs slowly (moderately limited) ~too acid (slightly limited)	0.50  0.39  0.24	Moderately limited ~percs slowly (moderately limited) ~wetness (slightly limited) ~too acid (slightly limited)	0.39  0.28  0.24	Limited ~slope (limited) ~wetness (moderately limited) ~percs slowly (moderately limited)	0.78  0.50  0.39	Slightly limited ~wetness (slightly limited)	0.28
SmC:								
Smithdale-----	Not limited		Not limited		Limited ~slope (limited)	0.98	Not limited	
SmD:								
Smithdale-----	Limited ~slope (limited)	0.63	Limited ~slope (limited)	0.63	Very limited ~slope (very limited)	1.00	Not limited	
SmE:								
Smithdale-----	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00	Limited ~slope (limited)	0.75

Table 8.--Recreational Development--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds		Paths and trails	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
StB: Smithton-----	Very limited ~wetness (very limited) ~percs slowly (slightly limited)	1.00  0.17	Very limited ~wetness (very limited) ~percs slowly (slightly limited)	1.00  0.17	Very limited ~wetness (very limited) ~percs slowly (slightly limited)	1.00  0.17	Very limited ~wetness (very limited)	1.00
TrB: Trebloc-----	Very limited ~wetness (very limited) ~percs slowly (moderately limited)	1.00  0.40	Very limited ~wetness (very limited) ~percs slowly (moderately limited)	1.00  0.40	Very limited ~wetness (very limited) ~percs slowly (moderately limited)	1.00  0.40	Very limited ~wetness (very limited)	1.00
UnA: Una-----	Very limited ~flooding (very limited) ~wetness (very limited) ~percs slowly (very limited)	1.00  1.00  1.00	Very limited ~wetness (very limited) ~percs slowly (very limited) ~too clayey (moderately limited)	1.00  1.00  0.60	Very limited ~flooding (very limited) ~wetness (very limited) ~percs slowly (very limited)	1.00  1.00  1.00	Very limited ~wetness (very limited) ~too clayey (moderately limited) ~flooding (moderately limited)	1.00  0.60  0.60
UpA: Una-----	Very limited ~ponded (wetness) (very limited) ~flooding (very limited) ~wetness (very limited)	1.00  1.00  1.00	Very limited ~ponded (wetness) (very limited) ~wetness (very limited) ~percs slowly (very limited)	1.00  1.00  1.00	Very limited ~flooding (very limited) ~ponded (wetness) (very limited) ~wetness (very limited)	1.00  1.00  1.00	Very limited ~ponded (wetness) (very limited) ~wetness (very limited) ~too clayey (moderately limited)	1.00  1.00  0.60
W: Water-----	Not rated		Not rated		Not rated		Not rated	
WaC: Warnock-----	Slightly limited ~too acid (slightly limited)	0.24	Slightly limited ~too acid (slightly limited)	0.24	Moderately limited ~slope (moderately limited) ~too acid (slightly limited)	0.40  0.24	Not limited	
WsC: Warnock-----	Slightly limited ~too acid (slightly limited)	0.24	Slightly limited ~too acid (slightly limited)	0.24	Moderately limited ~slope (moderately limited) ~too acid (slightly limited)	0.40  0.24	Not limited	
Smithdale-----	Not limited		Not limited		Moderately limited ~slope (moderately limited)	0.40	Not limited	

Table 9a.--Wildlife Habitat (Part 1)

[The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table]

Map symbol and soil name	Grain and seed crops (for use as food and cover)		Domestic grasses and legumes (for use as food and cover)		Upland wild herbaceous plants		Upland shrubs and vines		Upland deciduous trees	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
AaA: Amy-----	Very limited ~wetness (very limited) ~percs slowly (moderately limited)	1.00  0.39	Very limited ~wetness (very limited) ~percs slowly (moderately limited)	1.00  0.39	Very limited ~wetness (very limited)	1.00	Very limited ~wetness (very limited)	1.00	Very limited ~wetness (very limited)	1.00
AgB: Amy-----	Very limited ~wetness (very limited) ~moderate erodibility (moderately limited) ~percs slowly (moderately limited)	1.00  0.50  0.39	Very limited ~wetness (very limited) ~moderate erodibility (moderately limited) ~percs slowly (moderately limited)	1.00  0.50  0.39	Very limited ~wetness (very limited)	1.00	Very limited ~wetness (very limited)	1.00	Very limited ~wetness (very limited)	1.00
Gurdon-----	Moderately limited ~wetness (moderately limited) ~moderate erodibility (moderately limited)	0.60  0.50	Moderately limited ~wetness (moderately limited) ~moderate erodibility (moderately limited)	0.60  0.50	Moderately limited ~wetness (moderately limited)	0.60	Moderately limited ~wetness (moderately limited)	0.60	Limited ~wetness (limited)	0.99
AnC: Angie-----	Moderately limited ~moderate erodibility (moderately limited) ~percs slowly (moderately limited)	0.50  0.39	Moderately limited ~moderate erodibility (moderately limited) ~percs slowly (moderately limited)	0.50  0.39	Not limited		Not limited		Slightly limited ~wetness (slightly limited)	0.01
AtA: Aguents-----	Not Rated		Not rated		Not rated		Not rated		Not rated	
BbA: Bibb-----	Very limited ~wetness (very limited) ~flooding (limited) ~droughty (slightly limited)	1.00  0.90  0.00	Very limited ~wetness (very limited) ~flooding (limited)	1.00  0.90	Very limited ~wetness (very limited) ~flooding (prolonged) (slightly limited)	1.00  0.20	Very limited ~wetness (very limited) ~flooding (prolonged) (slightly limited)	1.00  0.20	Very limited ~wetness (very limited) ~flooding (prolonged) (slightly limited)	1.00  0.20

Table 9a.--Wildlife Habitat (Part 1)--Continued

Map symbol and soil name	Grain and seed crops (for use as food and cover)		Domestic grasses and legumes (for use as food and cover)		Upland wild herbaceous plants		Upland shrubs and vines		Upland deciduous trees	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
BrC: Briley-----	Limited ~droughty (limited) ~too sandy (moderately limited) ~moderate erodibility (moderately limited)	0.74 0.50 0.50	Moderately limited ~too sandy (moderately limited) ~moderate erodibility (moderately limited)	0.50 0.50	Moderately limited ~too sandy (moderately limited)	0.50	Moderately limited ~too sandy (moderately limited)	0.50	Not limited	
DAM: Dam-----	Not rated		Not rated		Not rated		Not rated		Not rated	
DdC: Darden-----	Very limited ~droughty (very limited) ~too sandy (moderately limited) ~moderate erodibility (moderately limited)	1.00 0.50 0.50	Limited ~droughty (limited) ~too sandy (moderately limited) ~moderate erodibility (moderately limited)	0.69 0.50 0.50	Limited ~droughty (limited) ~too sandy (moderately limited)	0.69 0.50	Limited ~droughty (limited) ~too sandy (moderately limited)	0.69 0.50	Limited ~droughty (limited)	0.69
DdD: Darden-----	Very limited ~droughty (very limited) ~too sandy (moderately limited) ~moderate erodibility (moderately limited)	1.00 0.50 0.50	Limited ~droughty (limited) ~too sandy (moderately limited) ~moderate erodibility (moderately limited)	0.69 0.50 0.50	Limited ~droughty (limited) ~too sandy (moderately limited)	0.69 0.50	Limited ~droughty (limited) ~too sandy (moderately limited)	0.69 0.50	Limited ~droughty (limited)	0.69
GrB: Gurdon-----	Moderately limited ~wetness (moderately limited) ~moderate erodibility (moderately limited)	0.60 0.50	Moderately limited ~wetness (moderately limited) ~moderate erodibility (moderately limited)	0.60 0.50	Moderately limited ~wetness (moderately limited)	0.60	Moderately limited ~wetness (moderately limited)	0.60	Limited ~wetness (limited)	0.99
GyA: Guyton-----	Very limited ~wetness (very limited) ~flooding (limited) ~percs slowly (moderately limited)	1.00 0.90 0.39	Very limited ~wetness (very limited) ~flooding (limited) ~percs slowly (moderately limited)	1.00 0.90 0.39	Very limited ~wetness (very limited) ~flooding (prolonged) (slightly limited)	1.00 0.20	Very limited ~wetness (very limited) ~flooding (prolonged) (slightly limited)	1.00 0.20	Very limited ~wetness (very limited) ~flooding (prolonged) (slightly limited)	1.00 0.20

Table 9a.--Wildlife Habitat (Part 1)--Continued

Map symbol and soil name	Grain and seed crops (for use as food and cover)		Domestic grasses and legumes (for use as food and cover)		Upland wild herbaceous plants		Upland shrubs and vines		Upland deciduous trees	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
HaC: Harleston---	Moderately limited ~moderate erodibility (moderately limited) ~wetness (slightly limited) ~droughty (slightly limited)	0.50 0.28 0.05	Moderately limited ~moderate erodibility (moderately limited) ~wetness (slightly limited)	0.50 0.28	Slightly limited ~wetness (slightly limited)	0.28	Slightly limited ~wetness (slightly limited)	0.28	Moderately limited ~wetness (moderately limited)	0.45
LVS: Levee-----	Not rated		Not rated		Not rated		Not rated		Not rated	
OfA: Oil-waste land-----	Not rated		Not rated		Not rated		Not rated		Not rated	
Fluvaquents-	Not rated		Not rated		Not rated		Not rated		Not rated	
RuB: Ruston-----	Moderately limited ~moderate erodibility (moderately limited) ~droughty (slightly limited)	0.50 0.07	Moderately limited ~moderate erodibility (moderately limited)	0.50	Not limited		Not limited		Not limited	
RwC: Rosalie-----	Very limited ~droughty (very limited) ~too sandy (moderately limited) ~moderate erodibility (moderately limited)	1.00 0.50 0.50	Moderately limited ~too sandy (moderately limited) ~moderate erodibility (moderately limited) ~droughty (slightly limited)	0.50 0.50 0.03	Moderately limited ~too sandy (moderately limited) ~droughty (slightly limited)	0.50 0.03	Moderately limited ~too sandy (moderately limited) ~droughty (slightly limited)	0.50 0.03	Slightly limited ~droughty (slightly limited)	0.03
Warnock----	Moderately limited ~moderate erodibility (moderately limited) ~droughty (slightly limited)	0.50 0.17	Moderately limited ~moderate erodibility (moderately limited)	0.50	Not limited		Not limited		Slightly limited ~wetness (slightly limited)	0.29
SaC: Sacul-----	Moderately limited ~moderate erodibility (moderately limited) ~percs slowly (moderately limited)	0.50 0.39	Moderately limited ~moderate erodibility (moderately limited) ~percs slowly (moderately limited)	0.50 0.39	Not limited		Not limited		Slightly limited ~wetness (slightly limited)	0.29



Table 9a.--Wildlife Habitat (Part 1)--Continued

Map symbol and soil name	Grain and seed crops (for use as food and cover)		Domestic grasses and legumes (for use as food and cover)		Upland wild herbaceous plants		Upland shrubs and vines		Upland deciduous trees	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
SaD: Sacul-----	Limited ~high erodibility (limited) ~percs slowly (moderately limited)	0.80 0.39	Limited ~high erodibility (limited) ~percs slowly (moderately limited)	0.80 0.39	Not limited		Not limited		Slightly limited ~wetness (slightly limited)	0.29
SaE: Sacul-----	Limited ~high erodibility (limited) ~slope (moderately limited) ~percs slowly (moderately limited)	0.80 0.48 0.39	Limited ~high erodibility (limited) ~slope (moderately limited) ~percs slowly (moderately limited)	0.80 0.48 0.39	Not limited		Not limited		Slightly limited ~wetness (slightly limited)	0.29
ScC: Sacul-----	Moderately limited ~moderate erodibility (moderately limited) ~percs slowly (moderately limited)	0.50 0.39	Moderately limited ~moderate erodibility (moderately limited) ~percs slowly (moderately limited)	0.50 0.39	Not limited		Not limited		Slightly limited ~wetness (slightly limited)	0.29
Sawyer-----	Moderately limited ~moderate erodibility (moderately limited) ~wetness (moderately limited) ~percs slowly (moderately limited)	0.50 0.44 0.39	Moderately limited ~moderate erodibility (moderately limited) ~wetness (moderately limited) ~percs slowly (moderately limited)	0.50 0.44 0.39	Moderately limited ~wetness (moderately limited)	0.44	Moderately limited ~wetness (moderately limited)	0.44	Moderately limited ~wetness (moderately limited)	0.59
ScD: Sacul-----	Limited ~high erodibility (limited) ~percs slowly (moderately limited)	0.80 0.39	Limited ~high erodibility (limited) ~percs slowly (moderately limited)	0.80 0.39	Not limited		Not limited		Slightly limited ~wetness (slightly limited)	0.29
Sawyer-----	Limited ~high erodibility (limited) ~wetness (moderately limited) ~percs slowly (moderately limited)	0.80 0.44 0.39	Limited ~high erodibility (limited) ~wetness (moderately limited) ~percs slowly (moderately limited)	0.80 0.44 0.39	Moderately limited ~wetness (moderately limited)	0.44	Moderately limited ~wetness (moderately limited)	0.44	Moderately limited ~wetness (moderately limited)	0.59

Table 9a.--Wildlife Habitat (Part 1)--Continued

Map symbol and soil name	Grain and seed crops (for use as food and cover)		Domestic grasses and legumes (for use as food and cover)		Upland wild herbaceous plants		Upland shrubs and vines		Upland deciduous trees	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
SeC: Sawyer-----	Moderately limited ~moderate erodibility (moderately limited) ~wetness (moderately limited) ~percs slowly (moderately limited)	0.50 0.44 0.39	Moderately limited ~moderate erodibility (moderately limited) ~wetness (moderately limited) ~percs slowly (moderately limited)	0.50 0.44 0.39	Moderately limited ~wetness (moderately limited)	0.44	Moderately limited ~wetness (moderately limited)	0.44	Moderately limited ~wetness (moderately limited)	0.59
SmC: Smithdale---	Moderately limited ~moderate erodibility (moderately limited)	0.50	Moderately limited ~moderate erodibility (moderately limited)	0.50	Not limited		Not limited		Not limited	
SmD: Smithdale---	Limited ~high erodibility (limited)	0.80	Limited ~high erodibility (limited)	0.80	Not limited		Not limited		Not limited	
SmE: Smithdale---	Limited ~high erodibility (limited) ~slope (moderately limited)	0.80 0.48	Limited ~high erodibility (limited) ~slope (moderately limited)	0.80 0.48	Not limited		Not limited		Not limited	
StB: Smithton----	Very limited ~wetness (very limited) ~percs slowly (slightly limited)	1.00 0.17	Very limited ~wetness (very limited) ~percs slowly (slightly limited)	1.00 0.17	Very limited ~wetness (very limited)	1.00	Very limited ~wetness (very limited)	1.00	Very limited ~wetness (very limited)	1.00
TrB: Trebloc-----	Very limited ~wetness (very limited) ~moderate erodibility (moderately limited) ~percs slowly (moderately limited)	1.00 0.50 0.40	Very limited ~wetness (very limited) ~moderate erodibility (moderately limited) ~percs slowly (moderately limited)	1.00 0.50 0.40	Very limited ~wetness (very limited)	1.00	Very limited ~wetness (very limited)	1.00	Very limited ~wetness (very limited)	1.00
UnA: Una-----	Very limited ~wetness (very limited) ~percs slowly (very limited) ~flooding (limited)	1.00 1.00 0.90	Very limited ~wetness (very limited) ~percs slowly (very limited) ~flooding (limited)	1.00 1.00 0.90	Very limited ~wetness (very limited) ~flooding (prolonged) (slightly limited) ~too clayey (slightly limited)	1.00 0.20 0.14	Very limited ~wetness (very limited) ~flooding (prolonged) (slightly limited) ~too clayey (slightly limited)	1.00 0.20 0.14	Very limited ~wetness (very limited) ~flooding (prolonged) (slightly limited)	1.00 0.20

Table 9a.--Wildlife Habitat (Part 1)--Continued

Map symbol and soil name	Grain and seed crops (for use as food and cover)		Domestic grasses and legumes (for use as food and cover)		Upland wild herbaceous plants		Upland shrubs and vines		Upland deciduous trees	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
UpA:										
Una-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~wetness	1.00	~wetness	1.00	~wetness	1.00	~wetness	1.00	~wetness	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~ponded (wetness)	1.00	~ponded (wetness)	1.00	~seasonally ponded	0.80	~seasonally ponded	0.80	~seasonally ponded	0.80
	(very limited)		(very limited)		(limited)		(limited)		(limited)	
	~percs slowly	1.00	~percs slowly	1.00	~flooding (prolonged)	0.20	~flooding (prolonged)	0.20	~flooding (prolonged)	0.20
	(very limited)		(very limited)		(slightly limited)		(slightly limited)		(slightly limited)	
W:										
Water-----	Not rated		Not rated		Not rated		Not rated		Not rated	
WaC:										
Warnock----	Moderately limited		Moderately limited		Not limited		Not limited		Slightly limited	
	~moderate erodibility	0.50	~moderate erodibility	0.50					~wetness	0.29
	(moderately limited)		(moderately limited)						(slightly limited)	
	~droughty	0.17								
	(slightly limited)									
WsC:										
Warnock----	Moderately limited		Moderately limited		Not limited		Not limited		Slightly limited	
	~moderate erodibility	0.50	~moderate erodibility	0.50					~wetness	0.29
	(moderately limited)		(moderately limited)						(slightly limited)	
	~droughty	0.17								
	(slightly limited)									
Smithdale---	Moderately limited		Moderately limited		Not limited		Not limited		Not limited	
	~moderate erodibility	0.50	~moderate erodibility	0.50						
	(moderately limited)		(moderately limited)							

Table 9b.--Wildlife Habitat (Part 2)

[The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table]

Map symbol and soil name	Upland mixed deciduous-conifer trees		Riparian herbaceous plants		Riparian shrubs, vines, and trees		Freshwater wetland plants		Irrigated freshwater wetland plants	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
AaA: Amy-----	Very limited ~wetness (very limited)	1.00	Limited ~infrequent flooding (limited)	0.80	Not limited		Not limited		Not limited	
AgB: Amy-----	Very limited ~wetness (very limited)	1.00	Limited ~infrequent flooding (limited)	0.80	Not limited		Not limited		Not limited	
Gurdon-----	Limited ~wetness (limited)	0.99	Limited ~infrequent flooding (limited) ~deep to water (slightly limited)	0.80 0.30	Not limited		Slightly limited ~deep to water (slightly limited)	0.30	Moderately limited ~seepage (moderately limited)	0.45
AnC: Angie-----	Slightly limited ~wetness (slightly limited)	0.01	Very limited ~deep to water (very limited) ~infrequent flooding (limited)	1.00 0.80	Slightly limited ~deep to water (slightly limited)	0.30	Very limited ~deep to water (very limited)	1.00	Limited ~slope (limited) ~deep to water (slightly limited)	0.66 0.30
AtA: Aguents-----	Not rated		Not rated		Not Rated		Not rated		Not rated	
BbA: Bibb-----	Very limited ~wetness (very limited) ~flooding (prolonged) (slightly limited)	1.00 0.20	Slightly limited ~flooding (prolonged) (slightly limited)	0.20	Slightly limited ~flooding (prolonged) (slightly limited)	0.20	Not limited		Moderately limited ~seepage (moderately limited)	0.45
BrC: Briley-----	Not limited		Very limited ~deep to water (very limited) ~infrequent flooding (limited) ~too sandy (moderately limited)	1.00 0.80 0.50	Not limited		Very limited ~deep to water (very limited) ~too sandy (moderately limited)	1.00 0.50	Limited ~slope (limited) ~too sandy (moderately limited) ~seepage (moderately limited)	0.66 0.50 0.45
DAM: Dam-----	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 9b.--Wildlife Habitat (Part 2)--Continued

Map symbol and soil name	Upland mixed deciduous- conifer trees		Riparian herbaceous plants		Riparian shrubs, vines, and trees		Freshwater wetland plants		Irrigated freshwater wetland plants	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
DdC: Darden-----	Limited ~droughty (limited)	0.69	Very limited ~deep to water (very limited) ~infrequent flooding (limited) ~too sandy (moderately limited)	1.00 0.80 0.50	Limited ~droughty (limited)	0.69	Very limited ~deep to water (very limited) ~too sandy (moderately limited)	1.00 0.50	Very limited ~seepage (very limited) ~slope (limited) ~too sandy (moderately limited)	1.00 0.66 0.50
DdD: Darden-----	Limited ~droughty (limited)	0.69	Very limited ~deep to water (very limited) ~infrequent flooding (limited) ~too sandy (moderately limited)	1.00 0.80 0.50	Limited ~droughty (limited)	0.69	Very limited ~deep to water (very limited) ~too sandy (moderately limited)	1.00 0.50	Very limited ~slope (very limited) ~seepage (very limited) ~too sandy (moderately limited)	1.00 1.00 0.50
GrB: Gurdon-----	Limited ~wetness (limited)	0.99	Limited ~infrequent flooding (limited) ~deep to water (slightly limited)	0.80 0.30	Not limited		Slightly limited ~deep to water (slightly limited)	0.30	Moderately limited ~seepage (moderately limited)	0.45
GyA: Guyton-----	Very limited ~wetness (very limited) ~flooding (prolonged) (slightly limited)	1.00 0.20	Slightly limited ~flooding (prolonged) (slightly limited)	0.20	Slightly limited ~flooding (prolonged) (slightly limited)	0.20	Not limited		Not limited	
HaC: Harleston---	Moderately limited ~wetness (moderately limited)	0.45	Limited ~infrequent flooding (limited) ~deep to water (limited)	0.80 0.60	Not limited		Limited ~deep to water (limited)	0.60	Limited ~slope (limited) ~seepage (moderately limited)	0.66 0.45
LVS: Levee-----	Not rated		Not rated		Not rated		Not rated		Not rated	
OfA: Oil-waste land-----	Not rated		Not rated		Not rated		Not rated		Not rated	
Fluvaquents-	Not rated		Not rated		Not Rated		Not rated		Not rated	

Table 9b.--Wildlife Habitat (Part 2)--Continued

Map symbol and soil name	Upland mixed deciduous- conifer trees		Riparian herbaceous plants		Riparian shrubs, vines, and trees		Freshwater wetland plants		Irrigated freshwater wetland plants	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
RuB: Ruston-----	Not limited		Very limited ~deep to water (very limited) ~infrequent flooding (limited)	1.00 0.80	Not limited		Very limited ~deep to water (very limited)	1.00	Moderately limited ~seepage (moderately limited)	0.45
RwC: Rosalie-----	Slightly limited ~droughty (slightly limited)	0.03	Very limited ~deep to water (very limited) ~infrequent flooding (limited) ~too sandy (moderately limited)	1.00 0.80 0.50	Slightly limited ~droughty (slightly limited)	0.03	Very limited ~deep to water (very limited) ~too sandy (moderately limited)	1.00 0.50	Limited ~slope (limited) ~too sandy (moderately limited) ~seepage (moderately limited)	0.66 0.50 0.45
Warnock-----	Slightly limited ~wetness (slightly limited)	0.29	Very limited ~deep to water (very limited) ~infrequent flooding (limited)	1.00 0.80	Slightly limited ~deep to water (slightly limited)	0.02	Very limited ~deep to water (very limited)	1.00	Limited ~slope (limited) ~seepage (moderately limited) ~deep to water (slightly limited)	0.66 0.45 0.02
SaC: Sacul-----	Slightly limited ~wetness (slightly limited)	0.29	Very limited ~deep to water (very limited) ~infrequent flooding (limited)	1.00 0.80	Slightly limited ~deep to water (slightly limited)	0.02	Very limited ~deep to water (very limited)	1.00	Limited ~slope (limited) ~deep to water (slightly limited)	0.66 0.02
SaD: Sacul-----	Slightly limited ~wetness (slightly limited)	0.29	Very limited ~deep to water (very limited) ~infrequent flooding (limited)	1.00 0.80	Slightly limited ~deep to water (slightly limited)	0.02	Very limited ~deep to water (very limited)	1.00	Very limited ~slope (very limited) ~deep to water (slightly limited)	1.00 0.02
SaE: Sacul-----	Slightly limited ~wetness (slightly limited)	0.29	Very limited ~deep to water (very limited) ~infrequent flooding (limited)	1.00 0.80	Slightly limited ~deep to water (slightly limited)	0.02	Very limited ~deep to water (very limited)	1.00	Very limited ~slope (very limited) ~deep to water (slightly limited)	1.00 0.02
ScC: Sacul-----	Slightly limited ~wetness (slightly limited)	0.29	Very limited ~deep to water (very limited) ~infrequent flooding (limited)	1.00 0.80	Slightly limited ~deep to water (slightly limited)	0.02	Very limited ~deep to water (very limited)	1.00	Limited ~slope (limited) ~deep to water (slightly limited)	0.66 0.02

Table 9b.--Wildlife Habitat (Part 2)--Continued

Map symbol and soil name	Upland mixed deciduous- conifer trees		Riparian herbaceous plants		Riparian shrubs, vines, and trees		Freshwater wetland plants		Irrigated freshwater wetland plants	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
ScC: Sawyer-----	Moderately limited ~wetness (moderately limited)	0.59	Limited ~infrequent flooding (limited) ~deep to water (moderately limited)	0.80 0.45	Not limited		Moderately limited ~deep to water (moderately limited)	0.45	Limited ~slope (limited)	0.66
ScD: Sacul-----	Slightly limited ~wetness (slightly limited)	0.29	Very limited ~deep to water (very limited) ~infrequent flooding (limited)	1.00 0.80	Slightly limited ~deep to water (slightly limited)	0.02	Very limited ~deep to water (very limited)	1.00	Very limited ~slope (very limited) ~deep to water (slightly limited)	1.00 0.02
Sawyer-----	Moderately limited ~wetness (moderately limited)	0.59	Limited ~infrequent flooding (limited) ~deep to water (moderately limited)	0.80 0.45	Not limited		Moderately limited ~deep to water (moderately limited)	0.45	Very limited ~slope (very limited)	1.00
SeC: Sawyer-----	Moderately limited ~wetness (moderately limited)	0.59	Limited ~infrequent flooding (limited) ~deep to water (moderately limited)	0.80 0.45	Not limited		Moderately limited ~deep to water (moderately limited)	0.45	Limited ~slope (limited)	0.66
SmC: Smithdale---	Not limited		Very limited ~deep to water (very limited) ~infrequent flooding (limited)	1.00 0.80	Not limited		Very limited ~deep to water (very limited)	1.00	Limited ~slope (limited) ~seepage (moderately limited)	0.91 0.45
SmD: Smithdale---	Not limited		Very limited ~deep to water (very limited) ~infrequent flooding (limited)	1.00 0.80	Not limited		Very limited ~deep to water (very limited)	1.00	Very limited ~slope (very limited) ~seepage (moderately limited)	1.00 0.45
SmE: Smithdale---	Not limited		Very limited ~deep to water (very limited) ~infrequent flooding (limited)	1.00 0.80	Not limited		Very limited ~deep to water (very limited)	1.00	Very limited ~slope (very limited) ~seepage (moderately limited)	1.00 0.45
StB: Smithton----	Very limited ~wetness (very limited)	1.00	Limited ~infrequent flooding (limited)	0.80	Not limited		Not limited		Slightly limited ~seepage (slightly limited)	0.15



Table 9b.--Wildlife Habitat (Part 2)--Continued

Map symbol and soil name	Upland mixed deciduous- conifer trees		Riparian herbaceous plants		Riparian shrubs, vines, and trees		Freshwater wetland plants		Irrigated freshwater wetland plants	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
TrB: Trebloc----	Very limited ~wetness (very limited)	1.00	Limited ~infrequent flooding (limited)	0.80	Not limited		Not limited		Not limited	
UnA: Una-----	Very limited ~wetness (very limited) ~flooding (prolonged) (slightly limited)	1.00 0.20	Slightly limited ~flooding (prolonged) (slightly limited)	0.20	Slightly limited ~flooding (prolonged) (slightly limited)	0.20	Not limited		Not limited	
UpA: Una-----	Very limited ~wetness (very limited) ~seasonally ponded (limited) ~flooding (prolonged) (slightly limited)	1.00 0.80 0.20	Limited ~seasonally ponded (limited) ~flooding (prolonged) (slightly limited)	0.80 0.20	Limited ~seasonally ponded (limited) ~flooding (prolonged) (slightly limited)	0.80 0.20	Limited ~seasonally ponded (limited)	0.80	Limited ~seasonally ponded (limited)	0.80
W: Water-----	Not rated		Not rated		Not rated		Not rated		Not rated	
WaC: Warnock----	Slightly limited ~wetness (slightly limited)	0.29	Very limited ~deep to water (very limited) ~infrequent flooding (limited)	1.00 0.80	Slightly limited ~deep to water (slightly limited)	0.02	Very limited ~deep to water (very limited)	1.00	Moderately limited ~seepage (moderately limited) ~slope (moderately limited) ~deep to water (slightly limited)	0.45 0.31 0.02
WsC: Warnock----	Slightly limited ~wetness (slightly limited)	0.29	Very limited ~deep to water (very limited) ~infrequent flooding (limited)	1.00 0.80	Slightly limited ~deep to water (slightly limited)	0.02	Very limited ~deep to water (very limited)	1.00	Moderately limited ~seepage (moderately limited) ~slope (moderately limited) ~deep to water (slightly limited)	0.45 0.31 0.02
Smithdale---	Not limited		Very limited ~deep to water (very limited) ~infrequent flooding (limited)	1.00 0.80	Not limited		Very limited ~deep to water (very limited)	1.00	Moderately limited ~seepage (moderately limited) ~slope (moderately limited)	0.45 0.31

Table 10.--Building Site Development

[The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table]

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings		Local roads and streets		Lawns and landscaping	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
<b>AaA:</b>										
<b>Amy-----</b>	Very limited		Very limited		Very limited		Very limited		Very limited	
	~wetness	1.00	~flooding	1.00	~flooding	1.00	~wetness	1.00	~wetness	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~flooding	1.00	~wetness	1.00	~wetness	1.00	~flooding (rare)	0.90	~too acid	0.30
	(very limited)		(very limited)		(very limited)		(limited)		(slightly limited)	
							~low strength	0.78		
							(limited)			
<b>AgB:</b>										
<b>Amy-----</b>	Very limited		Very limited		Very limited		Very limited		Very limited	
	~wetness	1.00	~flooding	1.00	~flooding	1.00	~wetness	1.00	~wetness	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~flooding	1.00	~wetness	1.00	~wetness	1.00	~flooding (rare)	0.90	~too acid	0.30
	(very limited)		(very limited)		(very limited)		(limited)		(slightly limited)	
							~low strength	0.78		
							(limited)			
<b>Gurdon-----</b>	Very limited		Very limited		Very limited		Limited		Limited	
	~flooding	1.00	~flooding	1.00	~flooding	1.00	~flooding (rare)	0.90	~wetness	0.60
	(very limited)		(very limited)		(very limited)		(limited)		(limited)	
	~wetness	0.99	~wetness	1.00	~wetness	0.60	~wetness	0.60	~too acid	0.42
	(limited)		(very limited)		(limited)		(limited)		(moderately limited)	
<b>AnC:</b>										
<b>Angie-----</b>	Very limited		Very limited		Very limited		Very limited		Not limited	
	~shrink-swell	1.00	~shrink-swell	1.00	~shrink-swell	1.00	~low strength	1.00		
	(very limited)		(very limited)		(very limited)		(very limited)			
	~wetness	0.01	~wetness	0.61	~slope	0.45	~shrink-swell	1.00		
	(slightly limited)		(limited)		(moderately limited)		(very limited)			
<b>AtA:</b>										
<b>Aquents-----</b>	Not rated		Not rated		Very limited		Very limited		Not rated	
					~flooding	1.00	~wetness	1.00		
					(very limited)		(very limited)			
					~wetness	1.00	~flooding (rare)	0.90		
					(very limited)		(limited)			
<b>BbA:</b>										
<b>Bibb-----</b>	Very limited		Very limited		Very limited		Very limited		Very limited	
	~wetness	1.00	~flooding	1.00	~flooding	1.00	~wetness	1.00	~wetness	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~flooding	1.00	~wetness	1.00	~wetness	1.00	~flooding	1.00	~flooding	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
									~too acid	0.54
									(moderately limited)	

Table 10.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings		Local roads and streets		Lawns and landscaping	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
BrC: Briley-----	Not limited		Not limited		Moderately limited ~slope (moderately limited)	0.45	Not limited		Not limited	
DAM: Dam-----	Not rated		Not rated		Not rated		Not rated		Not rated	
DdC: Darden-----	Not limited		Not limited		Moderately limited ~slope (moderately limited)	0.45	Not limited		Limited ~droughty (limited)	0.69
DdD: Darden-----	Limited ~slope (limited)	0.76	Limited ~slope (limited)	0.76	Very limited ~slope (very limited)	1.00	Limited ~slope (limited)	0.63	Limited ~droughty (limited) ~slope (limited)	0.69 0.63
GrB: Gurdon-----	Very limited ~flooding (very limited) ~wetness (limited)	1.00 0.99	Very limited ~flooding (very limited) ~wetness (very limited)	1.00 1.00	Very limited ~flooding (very limited) ~wetness (limited)	1.00 0.60	Limited ~flooding (rare) (limited) ~wetness (limited)	0.90 0.60	Limited ~wetness (limited) ~too acid (moderately limited)	0.60 0.42
GyA: Guyton-----	Very limited ~wetness (very limited) ~flooding (very limited)	1.00 1.00	Very limited ~flooding (very limited) ~wetness (very limited)	1.00 1.00	Very limited ~flooding (very limited) ~wetness (very limited)	1.00 1.00	Very limited ~wetness (very limited) ~flooding (very limited) ~low strength (very limited)	1.00 1.00 1.00	Very limited ~wetness (very limited) ~flooding (very limited) ~too acid (moderately limited)	1.00 1.00 0.42
HaC: Harleston---	Moderately limited ~wetness (moderately limited)	0.45	Very limited ~wetness (very limited)	1.00	Moderately limited ~slope (moderately limited)	0.45	Not limited		Moderately limited ~too acid (moderately limited)	0.54
LVS: Levee-----	Not rated		Not rated		Not rated		Not rated		Not rated	
OfA: Oil-waste land-----	Not rated		Not rated		Not rated		Not rated		Not rated	
Fluvaquents-	Not rated		Not rated		Very limited ~flooding (very limited) ~wetness (very limited)	1.00 1.00	Very limited ~wetness (very limited) ~flooding (very limited)	1.00 1.00	Not rated	

Table 10.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings		Local roads and streets		Lawns and landscaping	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
RuB: Ruston-----	Not limited		Not limited		Not limited		Not limited		Not limited	
RwC: Rosalie-----	Not limited		Not limited		Moderately limited ~slope (moderately limited)	0.45	Not limited		Slightly limited ~droughty (slightly limited)	0.03
Warnock-----	Slightly limited ~wetness (slightly limited)	0.29	Limited ~wetness (limited)	0.95	Moderately limited ~slope (moderately limited)	0.45	Not limited		Moderately limited ~too acid (moderately limited)	0.54
SaC: Sacul-----	Very limited ~shrink-swell (very limited) ~wetness (slightly limited)	1.00 0.29	Limited ~wetness (limited) ~shrink-swell (slightly limited)	0.95 0.26	Very limited ~shrink-swell (very limited) ~slope (moderately limited)	1.00 0.45	Very limited ~shrink-swell (very limited) ~low strength (very limited)	1.00 1.00	Slightly limited ~too acid (slightly limited)	0.12
SaD: Sacul-----	Very limited ~shrink-swell (very limited) ~slope (limited) ~wetness (slightly limited)	1.00 0.76 0.29	Limited ~wetness (limited) ~slope (limited) ~shrink-swell (slightly limited)	0.95 0.76 0.26	Very limited ~slope (very limited) ~shrink-swell (very limited)	1.00 1.00	Very limited ~shrink-swell (very limited) ~low strength (very limited) ~slope (limited)	1.00 1.00 0.63	Limited ~slope (limited) ~too acid (slightly limited)	0.63 0.12
SaE: Sacul-----	Very limited ~shrink-swell (very limited) ~slope (very limited) ~wetness (slightly limited)	1.00 1.00 0.29	Very limited ~slope (very limited) ~wetness (limited) ~shrink-swell (slightly limited)	1.00 0.95 0.26	Very limited ~slope (very limited) ~shrink-swell (very limited)	1.00 1.00	Very limited ~slope (very limited) ~shrink-swell (very limited) ~low strength (very limited)	1.00 1.00 1.00	Very limited ~slope (very limited) ~too acid (slightly limited)	1.00 0.12
ScC: Sacul-----	Very limited ~shrink-swell (very limited) ~wetness (slightly limited)	1.00 0.29	Limited ~wetness (limited) ~shrink-swell (slightly limited)	0.95 0.26	Very limited ~shrink-swell (very limited) ~slope (moderately limited)	1.00 0.45	Very limited ~shrink-swell (very limited) ~low strength (very limited)	1.00 1.00	Slightly limited ~too acid (slightly limited)	0.12
Sawyer-----	Moderately limited ~wetness (moderately limited) ~shrink-swell (moderately limited)	0.59 0.45	Very limited ~wetness (very limited) ~shrink-swell (limited)	1.00 0.99	Moderately limited ~slope (moderately limited) ~shrink-swell (moderately limited) ~wetness (slightly limited)	0.45 0.45 0.28	Very limited ~low strength (very limited) ~shrink-swell (moderately limited) ~wetness (slightly limited)	1.00 0.45 0.28	Moderately limited ~too acid (moderately limited) ~wetness (slightly limited)	0.54 0.28

Table 10.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings		Local roads and streets		Lawns and landscaping	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
ScD:										
Sacul-----	Very limited ~shrink-swell (very limited)	1.00	Limited ~wetness (limited)	0.95	Very limited ~slope (very limited)	1.00	Very limited ~shrink-swell (very limited)	1.00	Limited ~slope (limited)	0.63
	~slope (limited)	0.76	~slope (limited)	0.76	~shrink-swell (very limited)	1.00	~low strength (very limited)	1.00	~too acid (slightly limited)	0.12
	~wetness (slightly limited)	0.29	~shrink-swell (slightly limited)	0.26			~slope (limited)	0.63		
Sawyer-----	Limited ~slope (limited)	0.76	Very limited ~wetness (very limited)	1.00	Very limited ~slope (very limited)	1.00	Very limited ~low strength (very limited)	1.00	Limited ~slope (limited)	0.63
	~wetness (moderately limited)	0.59	~shrink-swell (limited)	0.99	~shrink-swell (moderately limited)	0.45	~slope (limited)	0.63	~too acid (moderately limited)	0.54
	~shrink-swell (moderately limited)	0.45	~slope (limited)	0.76	~wetness (slightly limited)	0.28	~shrink-swell (moderately limited)	0.45	~wetness (slightly limited)	0.28
SeC:										
Sawyer-----	Moderately limited ~wetness (moderately limited)	0.59	Very limited ~wetness (very limited)	1.00	Moderately limited ~slope (moderately limited)	0.45	Very limited ~low strength (very limited)	1.00	Moderately limited ~too acid (moderately limited)	0.54
	~shrink-swell (moderately limited)	0.45	~shrink-swell (limited)	0.99	~shrink-swell (moderately limited)	0.45	~shrink-swell (moderately limited)	0.45	~wetness (slightly limited)	0.28
					~wetness (slightly limited)	0.28	~wetness (slightly limited)	0.28		
SmC:										
Smithdale---	Not limited		Not limited		Limited ~slope (limited)	0.68	Not limited		Slightly limited ~too acid (slightly limited)	0.30
SmD:										
Smithdale---	Limited ~slope (limited)	0.76	Limited ~slope (limited)	0.76	Very limited ~slope (very limited)	1.00	Limited ~slope (limited)	0.63	Limited ~slope (limited) ~too acid (slightly limited)	0.63 0.30
SmE:										
Smithdale---	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited) ~too acid (slightly limited)	1.00 0.30
StB:										
Smithton----	Very limited ~wetness (very limited)	1.00	Very limited ~wetness (very limited)	1.00	Very limited ~wetness (very limited)	1.00	Very limited ~wetness (very limited)	1.00	Very limited ~wetness (very limited) ~too acid (slightly limited)	1.00 0.30

Table 10.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings		Local roads and streets		Lawns and landscaping	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
TrB: Trebloc-----	Very limited ~wetness (very limited) ~shrink-swell (moderately limited)	1.00  0.45	Very limited ~wetness (very limited) ~shrink-swell (moderately limited)	1.00  0.45	Very limited ~wetness (very limited) ~shrink-swell (moderately limited)	1.00  0.45	Very limited ~wetness (very limited) ~low strength (very limited) ~shrink-swell (moderately limited)	1.00  1.00  0.45	Very limited ~wetness (very limited) ~too acid (slightly limited)	1.00  0.30
UnA: Una-----	Very limited ~wetness (very limited) ~flooding (very limited) ~shrink-swell (very limited)	1.00  1.00  1.00	Very limited ~flooding (very limited) ~wetness (very limited) ~shrink-swell (very limited)	1.00  1.00  1.00	Very limited ~flooding (very limited) ~wetness (very limited) ~shrink-swell (very limited)	1.00  1.00  1.00	Very limited ~low strength (very limited) ~wetness (very limited) ~flooding (very limited)	1.00  1.00  1.00	Very limited ~wetness (very limited) ~flooding (very limited) ~too clayey (moderately limited)	1.00  1.00  0.60
UpA: Una-----	Very limited ~wetness (very limited) ~ponded (very limited) ~flooding (very limited)	1.00  1.00  1.00	Very limited ~ponded (very limited) ~flooding (very limited) ~wetness (very limited)	1.00  1.00  1.00	Very limited ~ponded (wetness) (very limited) ~flooding (very limited) ~wetness (very limited)	1.00  1.00  1.00	Very limited ~low strength (very limited) ~ponded (wetness) (very limited) ~wetness (very limited)	1.00  1.00  1.00	Very limited ~wetness (very limited) ~ponded (wetness) (very limited) ~flooding (very limited)	1.00  1.00  1.00
W: Water-----	Not rated		Not rated		Not rated		Not rated		Not rated	
WaC: Warnock-----	Slightly limited ~wetness (slightly limited)	0.29	Limited ~wetness (limited)	0.95	Slightly limited ~slope (slightly limited)	0.15	Not limited		Moderately limited ~too acid (moderately limited)	0.54
WsC: Warnock-----	Slightly limited ~wetness (slightly limited)	0.29	Limited ~wetness (limited)	0.95	Slightly limited ~slope (slightly limited)	0.15	Not limited		Moderately limited ~too acid (moderately limited)	0.54
Smithdale---	Not limited		Not limited		Slightly limited ~slope (slightly limited)	0.15	Not limited		Slightly limited ~too acid (slightly limited)	0.30

Table 11.--Sanitary Facilities

[The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table]

Map symbol and soil name	Septic tank absorption field		Sewage lagoons		Sanitary landfill (trench)		Sanitary landfill (area)		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
AaA:										
Amy-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~wetness	1.00	~wetness	1.00	~wetness	1.00	~wetness	1.00	~wetness	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~percs slowly	0.93			~flooding (rare)	0.60	~flooding (rare)	0.60	~too acid	0.30
	(limited)				(moderately limited)		(moderately limited)		(slightly limited)	
	~flooding (rare)	0.60			~too acid	0.30				
	(moderately limited)				(slightly limited)					
AgB:										
Amy-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~wetness	1.00	~wetness	1.00	~wetness	1.00	~wetness	1.00	~wetness	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~percs slowly	0.93			~flooding (rare)	0.60	~flooding (rare)	0.60	~too acid	0.30
	(limited)				(moderately limited)		(moderately limited)		(slightly limited)	
	~flooding (rare)	0.60			~too acid	0.30				
	(moderately limited)				(slightly limited)					
Gurdon-----	Very limited		Very limited		Very limited		Limited		Moderately limited	
	~wetness	1.00	~wetness	1.00	~wetness	1.00	~wetness	0.99	~wetness	0.60
	(very limited)		(very limited)		(very limited)		(limited)		(moderately limited)	
	~percs slowly	0.74	~seepage	0.50	~flooding (rare)	0.60	~flooding (rare)	0.60	~too acid	0.42
	(limited)		(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)	
	~flooding (rare)	0.60			~too acid	0.42				
	(moderately limited)				(moderately limited)					
AnC:										
Angie-----	Limited		Limited		Limited		Not limited		Limited	
	~percs slowly	0.93	~wetness	0.71	~too clayey	0.64			~hard to pack	0.70
	(limited)		(limited)		(limited)				(limited)	
	~wetness	0.60	~slope	0.66	~too acid	0.42			~too acid	0.42
	(moderately limited)		(limited)		(moderately limited)				(moderately limited)	
					~wetness	0.30			~too clayey	0.36
					(slightly limited)				(moderately limited)	
AtA:										
Aquents-----	Very limited		Not limited		Not rated		Very limited		Not rated	
	~wetness	1.00					~wetness	1.00		
	(very limited)						(very limited)			
	~flooding (rare)	0.60					~flooding (rare)	0.60		
	(moderately limited)						(moderately limited)			



Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption field		Sewage lagoons		Sanitary landfill (trench)		Sanitary landfill (area)		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
BbA: Bibb-----	Very limited ~wetness (very limited) ~flooding (very limited) ~percs slowly (slightly limited)	1.00  1.00  0.25	Very limited ~flooding (very limited) ~wetness (very limited) ~seepage (moderately limited)	1.00  1.00  0.50	Very limited ~wetness (very limited) ~flooding (very limited) ~too acid (moderately limited)	1.00  1.00  0.54	Very limited ~flooding (very limited) ~wetness (very limited)	1.00  1.00	Very limited ~wetness (very limited) ~too acid (moderately limited)	1.00  0.54
BrC: Briley-----	Slightly limited ~percs slowly (slightly limited)	0.25	Very limited ~seepage (very limited) ~slope (limited)	1.00  0.66	Slightly limited ~too acid (slightly limited)	0.12	Very limited ~seepage (very limited)	1.00	Slightly limited ~too acid (slightly limited)	0.12
DAM: Dam-----	Not rated		Not rated		Not rated		Not rated		Not rated	
DdC: Darden-----	Very limited ~poor filter (very limited)	1.00	Very limited ~seepage (very limited) ~slope (limited)	1.00  0.66	Very limited ~seepage (very limited) ~too sandy (moderately limited)	1.00  0.60	Very limited ~seepage (very limited)	1.00	Very limited ~seepage (very limited) ~too sandy (moderately limited)	1.00  0.60
DdD: Darden-----	Very limited ~poor filter (very limited) ~slope (limited)	1.00  0.63	Very limited ~slope (very limited) ~seepage (very limited)	1.00  1.00	Very limited ~seepage (very limited) ~slope (limited) ~too sandy (moderately limited)	1.00  0.63  0.60	Very limited ~seepage (very limited) ~slope (limited)	1.00  0.63	Very limited ~seepage (very limited) ~slope (limited) ~too sandy (moderately limited)	1.00  0.63  0.60
GrB: Gurdon-----	Very limited ~wetness (very limited) ~percs slowly (limited) ~flooding (rare) (moderately limited)	1.00  0.74  0.60	Very limited ~wetness (very limited) ~seepage (moderately limited)	1.00  0.50	Very limited ~wetness (very limited) ~flooding (rare) (moderately limited) ~too acid (moderately limited)	1.00  0.60  0.42	Limited ~wetness (limited) ~flooding (rare) (moderately limited)	0.99  0.60	Moderately limited ~wetness (moderately limited) ~too acid (moderately limited)	0.60  0.42
GyA: Guyton-----	Very limited ~wetness (very limited) ~flooding (very limited) ~percs slowly (limited)	1.00  1.00  0.93	Very limited ~flooding (very limited) ~wetness (very limited)	1.00  1.00	Very limited ~wetness (very limited) ~flooding (very limited) ~too acid (moderately limited)	1.00  1.00  0.42	Very limited ~flooding (very limited) ~wetness (very limited)	1.00  1.00	Very limited ~wetness (very limited) ~too acid (moderately limited)	1.00  0.42

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption field		Sewage lagoons		Sanitary landfill (trench)		Sanitary landfill (area)		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
HaC: Harleston----	Very limited ~wetness (very limited) ~percs slowly (slightly limited)	1.00  0.25	Very limited ~wetness (very limited) ~slope (limited) ~seepage (moderately limited)	1.00  0.66  0.50	Limited ~wetness (limited) ~too acid (slightly limited)	0.79  0.30	Limited ~wetness (limited)	0.60	Moderately limited ~wetness (moderately limited) ~too acid (slightly limited)	0.40  0.30
LVS: Levee-----	Not rated		Not rated		Not rated		Not rated		Not rated	
OfA: Oil-waste land-----	Not rated		Not rated		Not rated		Not rated		Not rated	
Fluvaquents-	Very limited ~wetness (very limited) ~flooding (very limited)	1.00  1.00	Very limited ~flooding (very limited)	1.00	Not rated		Very limited ~flooding (very limited) ~wetness (very limited)	1.00  1.00	Not rated	
RuB: Ruston-----	Slightly limited ~percs slowly (slightly limited)	0.25	Moderately limited ~seepage (moderately limited)	0.50	Slightly limited ~too acid (slightly limited)	0.12	Not limited		Slightly limited ~too acid (slightly limited)	0.12
RwC: Rosalie-----	Slightly limited ~percs slowly (slightly limited)	0.25	Very limited ~seepage (very limited) ~slope (limited)	1.00  0.66	Moderately limited ~too acid (moderately limited)	0.54	Very limited ~seepage (very limited)	1.00	Moderately limited ~too acid (moderately limited)	0.54
Warnock-----	Limited ~wetness (limited) ~percs slowly (slightly limited)	0.98  0.25	Very limited ~wetness (very limited) ~slope (limited) ~seepage (moderately limited)	1.00  0.66  0.50	Moderately limited ~wetness (moderately limited) ~too acid (moderately limited)	0.59  0.54	Slightly limited ~wetness (slightly limited)	0.29	Moderately limited ~too acid (moderately limited) ~wetness (slightly limited)	0.54  0.28
SaC: Sacul-----	Limited ~wetness (limited) ~percs slowly (limited)	0.98  0.93	Very limited ~wetness (very limited) ~slope (limited)	1.00  0.66	Limited ~too clayey (limited) ~wetness (moderately limited) ~too acid (moderately limited)	0.75  0.59  0.54	Slightly limited ~wetness (slightly limited)	0.29	Moderately limited ~too acid (moderately limited) ~too clayey (moderately limited) ~wetness (slightly limited)	0.54  0.53  0.28

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption field		Sewage lagoons		Sanitary landfill (trench)		Sanitary landfill (area)		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
SaD: Sacul-----	Limited ~wetness (limited) ~percs slowly (limited) ~slope (limited)	0.98  0.93  0.63	Very limited ~slope (very limited) ~wetness (very limited)	1.00  1.00	Limited ~too clayey (limited) ~slope (limited) ~wetness (moderately limited)	0.75  0.63  0.59	Limited ~slope (limited) ~wetness (slightly limited)	0.63  0.29	Limited ~slope (limited) ~too acid (moderately limited) ~too clayey (moderately limited)	0.63  0.54  0.53
SaE: Sacul-----	Very limited ~slope (very limited) ~wetness (limited) ~percs slowly (limited)	1.00  0.98  0.93	Very limited ~slope (very limited) ~wetness (very limited)	1.00  1.00	Very limited ~slope (very limited) ~too clayey (limited) ~wetness (moderately limited)	1.00  0.75  0.59	Very limited ~slope (very limited) ~wetness (slightly limited)	1.00  0.29	Very limited ~slope (very limited) ~too acid (moderately limited) ~too clayey (moderately limited)	1.00  0.54  0.53
ScC: Sacul-----	Limited ~wetness (limited) ~percs slowly (limited)	0.98  0.93	Very limited ~wetness (very limited) ~slope (limited)	1.00  0.66	Limited ~too clayey (limited) ~wetness (moderately limited) ~too acid (moderately limited)	0.75  0.59  0.54	Slightly limited ~wetness (slightly limited)	0.29	Moderately limited ~too acid (moderately limited) ~too clayey (moderately limited) ~wetness (slightly limited)	0.54  0.53  0.28
Sawyer-----	Very limited ~wetness (very limited) ~percs slowly (limited)	1.00  0.93	Very limited ~wetness (very limited) ~slope (limited)	1.00  0.66	Limited ~wetness (limited) ~too clayey (limited) ~too acid (moderately limited)	0.99  0.70  0.54	Limited ~wetness (limited)	0.80	Limited ~hard to pack (limited) ~too acid (moderately limited) ~wetness (moderately limited)	0.70  0.54  0.50
ScD: Sacul-----	Limited ~wetness (limited) ~percs slowly (limited) ~slope (limited)	0.98  0.93  0.63	Very limited ~slope (very limited) ~wetness (very limited)	1.00  1.00	Limited ~too clayey (limited) ~slope (limited) ~wetness (moderately limited)	0.75  0.63  0.59	Limited ~slope (limited) ~wetness (slightly limited)	0.63  0.29	Limited ~slope (limited) ~too acid (moderately limited) ~too clayey (moderately limited)	0.63  0.54  0.53
Sawyer-----	Very limited ~wetness (very limited) ~percs slowly (limited) ~slope (limited)	1.00  0.93  0.63	Very limited ~slope (very limited) ~wetness (very limited)	1.00  1.00	Limited ~wetness (limited) ~too clayey (limited) ~slope (limited)	0.99  0.70  0.63	Limited ~wetness (limited) ~slope (limited)	0.80  0.63	Limited ~hard to pack (limited) ~slope (limited) ~too acid (moderately limited)	0.70  0.63  0.54

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption field		Sewage lagoons		Sanitary landfill (trench)		Sanitary landfill (area)		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
SeC: Sawyer-----	Very limited ~wetness (very limited) ~percs slowly (limited)	1.00  0.93	Very limited ~wetness (very limited) ~slope (limited)	1.00  0.66	Limited ~wetness (limited) ~too clayey (limited) ~too acid (moderately limited)	0.99  0.70 0.54	Limited ~wetness (limited)	0.80	Limited ~hard to pack (limited) ~too acid (moderately limited) ~wetness (moderately limited)	0.70  0.54 0.50
SmC: Smithdale---	Slightly limited ~percs slowly (slightly limited)	0.25	Very limited ~seepage (very limited) ~slope (limited)	1.00  0.91	Limited ~seepage (limited) ~too acid (slightly limited)	0.79  0.30	Limited ~seepage (limited)	0.75	Moderately limited ~seepage (moderately limited) ~too acid (slightly limited)	0.50  0.30
SmD: Smithdale---	Limited ~slope (limited) ~percs slowly (slightly limited)	0.63  0.25	Very limited ~slope (very limited) ~seepage (very limited)	1.00  1.00	Limited ~seepage (limited) ~slope (limited) ~too acid (slightly limited)	0.79  0.63 0.30	Limited ~seepage (limited) ~slope (limited)	0.75  0.63	Limited ~slope (limited) ~seepage (moderately limited) ~too acid (slightly limited)	0.63  0.50 0.30
SmE: Smithdale---	Very limited ~slope (very limited) ~percs slowly (slightly limited)	1.00  0.25	Very limited ~slope (very limited) ~seepage (very limited)	1.00  1.00	Very limited ~slope (very limited) ~seepage (limited) ~too acid (slightly limited)	1.00  0.79 0.30	Very limited ~slope (very limited) ~seepage (limited)	1.00  0.75	Very limited ~slope (very limited) ~seepage (moderately limited) ~too acid (slightly limited)	1.00  0.50 0.30
StB: Smithton---	Very limited ~wetness (very limited) ~percs slowly (limited)	1.00  0.74	Very limited ~wetness (very limited) ~seepage (moderately limited)	1.00  0.50	Very limited ~wetness (very limited) ~too acid (slightly limited)	1.00  0.30	Very limited ~wetness (very limited)	1.00	Very limited ~wetness (very limited) ~too acid (slightly limited)	1.00  0.30
TrB: Trebloc-----	Very limited ~wetness (very limited) ~percs slowly (limited)	1.00  0.93	Very limited ~wetness (very limited)	1.00	Very limited ~wetness (very limited) ~too clayey (limited) ~too acid (slightly limited)	1.00  0.61 0.30	Very limited ~wetness (very limited)	1.00	Very limited ~wetness (very limited) ~too clayey (moderately limited) ~too acid (slightly limited)	1.00  0.31 0.30

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption field		Sewage lagoons		Sanitary landfill (trench)		Sanitary landfill (area)		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
UnA: Una-----	Very limited ~wetness (very limited) ~flooding (very limited) ~percs slowly (very limited)	1.00 1.00 1.00	Very limited ~flooding (very limited) ~wetness (very limited)	1.00 1.00	Very limited ~wetness (very limited) ~flooding (very limited) ~too clayey (limited)	1.00 1.00 0.63	Very limited ~flooding (very limited) ~wetness (very limited)	1.00 1.00	Very limited ~wetness (very limited) ~hard to pack (limited) ~too clayey (moderately limited)	1.00 0.70 0.34
UpA: Una-----	Very limited ~ponded (wetness) (very limited) ~wetness (very limited) ~flooding (very limited)	1.00 1.00 1.00	Very limited ~flooding (very limited) ~wetness (very limited) ~ponded (wetness) (very limited)	1.00 1.00 1.00	Very limited ~ponded (wetness) (very limited) ~wetness (very limited) ~flooding (very limited)	1.00 1.00 1.00	Very limited ~flooding (very limited) ~wetness (very limited) ~ponded (wetness) (very limited)	1.00 1.00 1.00	Very limited ~ponded (wetness) (very limited) ~wetness (very limited) ~hard to pack (limited)	1.00 1.00 0.70
W: Water-----	Not rated		Not rated		Not rated		Not rated		Not rated	
WaC: Warnock----	Limited ~wetness (limited) ~percs slowly (slightly limited)	0.98 0.25	Very limited ~wetness (very limited) ~seepage (moderately limited) ~slope (moderately limited)	1.00 0.50 0.31	Moderately limited ~wetness (moderately limited) ~too acid (moderately limited)	0.59 0.54	Slightly limited ~wetness (slightly limited)	0.29	Moderately limited ~too acid (moderately limited) ~wetness (slightly limited)	0.54 0.28
WsC: Warnock----	Limited ~wetness (limited) ~percs slowly (slightly limited)	0.98 0.25	Very limited ~wetness (very limited) ~seepage (moderately limited) ~slope (moderately limited)	1.00 0.50 0.31	Moderately limited ~wetness (moderately limited) ~too acid (moderately limited)	0.59 0.54	Slightly limited ~wetness (slightly limited)	0.29	Moderately limited ~too acid (moderately limited) ~wetness (slightly limited)	0.54 0.28
Smithdale---	Slightly limited ~percs slowly (slightly limited)	0.25	Very limited ~seepage (very limited) ~slope (moderately limited)	1.00 0.31	Limited ~seepage (limited) ~too acid (slightly limited)	0.79 0.30	Limited ~seepage (limited)	0.75	Moderately limited ~seepage (moderately limited) ~too acid (slightly limited)	0.50 0.30

Table 12.--Construction Materials and Excavating

[The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table]

Map symbol and soil name	Source for roadfill		Source for sand		Source for gravel		Source for topsoil		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
AaA: Amy-----	Very limited ~wetness (very limited)	1.00	Very limited ~excess fines (thickest layer) ~excess fines (bottom layer)	1.00	Very limited ~excess fines (bottom layer) ~excess fines (thickest layer)	1.00	Very limited ~wetness (very limited) ~too acid (slightly limited) ~too clayey (slightly limited)	1.00 0.30 0.08	Very limited ~wetness (very limited) ~cutbanks cave (slightly limited)	1.00 0.29
AgB: Amy-----	Very limited ~wetness (very limited)	1.00	Very limited ~excess fines (thickest layer) ~excess fines (bottom layer)	1.00	Very limited ~excess fines (bottom layer) ~excess fines (thickest layer)	1.00	Very limited ~wetness (very limited) ~too acid (slightly limited) ~too clayey (slightly limited)	1.00 0.30 0.08	Very limited ~wetness (very limited) ~cutbanks cave (slightly limited)	1.00 0.29
Gurdon-----	Limited ~wetness (limited)	0.86	Very limited ~excess fines (thickest layer) ~excess fines (bottom layer)	1.00	Very limited ~excess fines (bottom layer) ~excess fines (thickest layer)	1.00	Limited ~wetness (limited) ~too acid (moderately limited)	0.86 0.42	Very limited ~wetness (very limited) ~cutbanks cave (slightly limited)	1.00 0.29
AnC: Angie-----	Very limited ~low strength (very limited) ~shrink-swell (very limited)	1.00 1.00	Very limited ~excess fines (thickest layer) ~excess fines (bottom layer)	1.00	Very limited ~excess fines (bottom layer) ~excess fines (thickest layer)	1.00	Limited ~too clayey (limited) ~too acid (moderately limited)	0.94 0.42	Limited ~wetness (limited) ~too clayey (moderately limited) ~cutbanks cave (slightly limited)	0.61 0.36 0.29
AtA: Aguents-----	Not rated		Not rated		Not rated		Not rated		Not rated	
BbA: Bibb-----	Very limited ~wetness (very limited)	1.00	Very limited ~excess fines (thickest layer) ~excess fines (bottom layer)	1.00	Very limited ~excess fines (bottom layer) ~excess fines (thickest layer)	1.00	Very limited ~wetness (very limited) ~too sandy (limited) ~too acid (moderately limited)	1.00 0.78 0.54	Very limited ~wetness (very limited) ~flooding (moderately limited) ~cutbanks cave (slightly limited)	1.00 0.60 0.29

Table 12.--Construction Materials and Excavating--Continued

Map symbol and soil name	Source for roadfill		Source for sand		Source for gravel		Source for topsoil		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
BrC: Briley-----	Not limited		Very limited ~excess fines (thickest layer) ~excess fines (bottom layer)	1.00 1.00	Very limited ~excess fines (bottom layer) ~excess fines (thickest layer)	1.00 1.00	Limited ~too sandy (limited) ~too acid (slightly limited) ~too clayey (slightly limited)	0.65 0.12 0.08	Very limited ~cutbanks cave (very limited)	1.00
DAM: Dam-----	Not rated		Not rated		Not rated		Not rated		Not rated	
DdC: Darden-----	Not limited		Very limited ~excess fines (thickest layer) ~excess fines (bottom layer)	1.00 1.00	Very limited ~excess fines (bottom layer) ~excess fines (thickest layer)	1.00 1.00	Very limited ~too sandy (very limited)	1.00	Very limited ~cutbanks cave (very limited)	1.00
DdD: Darden-----	Not limited		Very limited ~excess fines (thickest layer) ~excess fines (bottom layer)	1.00 1.00	Very limited ~excess fines (bottom layer) ~excess fines (thickest layer)	1.00 1.00	Very limited ~too sandy (very limited) ~slope (limited)	1.00 0.63	Very limited ~cutbanks cave (very limited) ~slope (limited)	1.00 0.63
GrB: Gurdon-----	Limited ~wetness (limited)	0.86	Very limited ~excess fines (thickest layer) ~excess fines (bottom layer)	1.00 1.00	Very limited ~excess fines (bottom layer) ~excess fines (thickest layer)	1.00 1.00	Limited ~wetness (limited) ~too acid (moderately limited)	0.86 0.42	Very limited ~wetness (very limited) ~cutbanks cave (slightly limited)	1.00 0.29
GyA: Guyton-----	Very limited ~wetness (very limited) ~low strength (very limited)	1.00 1.00	Very limited ~excess fines (thickest layer) ~excess fines (bottom layer)	1.00 1.00	Very limited ~excess fines (bottom layer) ~excess fines (thickest layer)	1.00 1.00	Very limited ~wetness (very limited) ~too acid (moderately limited) ~too clayey (slightly limited)	1.00 0.42 0.17	Very limited ~wetness (very limited) ~flooding (moderately limited) ~cutbanks cave (slightly limited)	1.00 0.60 0.29
HaC: Harleston---	Slightly limited ~wetness (slightly limited)	0.12	Very limited ~excess fines (thickest layer) ~excess fines (bottom layer)	1.00 1.00	Very limited ~excess fines (bottom layer) ~excess fines (thickest layer)	1.00 1.00	Slightly limited ~too acid (slightly limited) ~too sandy (slightly limited) ~wetness (slightly limited)	0.30 0.30 0.12	Very limited ~wetness (very limited) ~cutbanks cave (slightly limited)	1.00 0.29



Table 12.--Construction Materials and Excavating--Continued

Map symbol and soil name	Source for roadfill		Source for sand		Source for gravel		Source for topsoil		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
LVS: Levee-----	Not rated		Not rated		Not rated		Not rated		Not rated	
OfA: Oil-waste land-----	Not rated		Not rated		Not rated		Not rated		Not rated	
Fluvaquents-	Not rated		Not rated		Not rated		Not rated		Not rated	
RuB: Ruston-----	Not limited		Very limited ~excess fines (thickest layer) ~excess fines (bottom layer)	1.00  1.00	Very limited ~excess fines (bottom layer) ~excess fines (thickest layer)	1.00  1.00	Moderately limited ~too sandy (moderately limited) ~too clayey (slightly limited) ~too acid (slightly limited)	0.52  0.21  0.12	Slightly limited ~cutbanks cave (slightly limited)	0.29
RwC: Rosalie-----	Not limited		Very limited ~excess fines (thickest layer) ~excess fines (bottom layer)	1.00  1.00	Very limited ~excess fines (bottom layer) ~excess fines (thickest layer)	1.00  1.00	Very limited ~too sandy (very limited)	1.00	Very limited ~cutbanks cave (very limited)	1.00
Warnock-----	Not limited		Very limited ~excess fines (thickest layer) ~excess fines (bottom layer)	1.00  1.00	Very limited ~excess fines (bottom layer) ~excess fines (thickest layer)	1.00  1.00	Moderately limited ~too acid (moderately limited) ~too sandy (moderately limited) ~too clayey (slightly limited)	0.54  0.40  0.08	Limited ~wetness (limited) ~cutbanks cave (slightly limited)	0.95  0.29
SaC: Sacul-----	Very limited ~low strength (very limited) ~shrink-swell (slightly limited)	1.00  0.26	Very limited ~excess fines (thickest layer) ~excess fines (bottom layer)	1.00  1.00	Very limited ~excess fines (bottom layer) ~excess fines (thickest layer)	1.00  1.00	Very limited ~too clayey (very limited) ~too acid (moderately limited)	1.00  0.54	Limited ~wetness (limited) ~too clayey (moderately limited) ~cutbanks cave (slightly limited)	0.95  0.53  0.29
SaD: Sacul-----	Very limited ~low strength (very limited) ~shrink-swell (slightly limited)	1.00  0.26	Very limited ~excess fines (thickest layer) ~excess fines (bottom layer)	1.00  1.00	Very limited ~excess fines (bottom layer) ~excess fines (thickest layer)	1.00  1.00	Very limited ~too clayey (very limited) ~slope (limited) ~too acid (moderately limited)	1.00  0.63  0.54	Limited ~wetness (limited) ~slope (limited) ~too clayey (moderately limited)	0.95  0.63  0.53

Table 12.--Construction Materials and Excavating--Continued

Map symbol and soil name	Source for roadfill		Source for sand		Source for gravel		Source for topsoil		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
SaE: Sacul-----	Very limited ~low strength (very limited) ~slope (limited) ~shrink-swell (slightly limited)	1.00  0.75  0.26	Very limited ~excess fines (thickest layer) ~excess fines (bottom layer)	1.00  1.00	Very limited ~excess fines (bottom layer) ~excess fines (thickest layer)	1.00  1.00	Very limited ~slope (very limited) ~too clayey (very limited) ~too acid (moderately limited)	1.00  1.00  0.54	Very limited ~slope (very limited) ~wetness (limited) ~too clayey (moderately limited)	1.00  0.95  0.53
ScC: Sacul-----	Very limited ~low strength (very limited) ~shrink-swell (slightly limited)	1.00  0.26	Very limited ~excess fines (thickest layer) ~excess fines (bottom layer)	1.00  1.00	Very limited ~excess fines (bottom layer) ~excess fines (thickest layer)	1.00  1.00	Very limited ~too clayey (very limited) ~too acid (moderately limited)	1.00  0.54	Limited ~wetness (limited) ~too clayey (moderately limited) ~cutbanks cave (slightly limited)	0.95  0.53  0.29
Sawyer-----	Very limited ~low strength (very limited) ~shrink-swell (limited) ~wetness (moderately limited)	1.00  0.99  0.48	Very limited ~excess fines (thickest layer) ~excess fines (bottom layer)	1.00  1.00	Very limited ~excess fines (bottom layer) ~excess fines (thickest layer)	1.00  1.00	Moderately limited ~too acid (moderately limited) ~too clayey (moderately limited) ~wetness (moderately limited)	0.54  0.50  0.48	Very limited ~wetness (very limited) ~too clayey (moderately limited) ~cutbanks cave (slightly limited)	1.00  0.45  0.29
ScD: Sacul-----	Very limited ~low strength (very limited) ~shrink-swell (slightly limited)	1.00  0.26	Very limited ~excess fines (thickest layer) ~excess fines (bottom layer)	1.00  1.00	Very limited ~excess fines (bottom layer) ~excess fines (thickest layer)	1.00  1.00	Very limited ~too clayey (very limited) ~slope (limited) ~too acid (moderately limited)	1.00  0.63  0.54	Limited ~wetness (limited) ~slope (limited) ~too clayey (moderately limited)	0.95  0.63  0.53
Sawyer-----	Very limited ~low strength (very limited) ~shrink-swell (limited) ~wetness (moderately limited)	1.00  0.99  0.48	Very limited ~excess fines (thickest layer) ~excess fines (bottom layer)	1.00  1.00	Very limited ~excess fines (bottom layer) ~excess fines (thickest layer)	1.00  1.00	Limited ~slope (limited) ~too acid (moderately limited) ~too clayey (moderately limited)	0.63  0.54  0.50	Very limited ~wetness (very limited) ~slope (limited) ~too clayey (moderately limited)	1.00  0.63  0.45
SeC: Sawyer-----	Very limited ~low strength (very limited) ~shrink-swell (limited) ~wetness (moderately limited)	1.00  0.99  0.48	Very limited ~excess fines (thickest layer) ~excess fines (bottom layer)	1.00  1.00	Very limited ~excess fines (bottom layer) ~excess fines (thickest layer)	1.00  1.00	Moderately limited ~too acid (moderately limited) ~too clayey (moderately limited) ~wetness (moderately limited)	0.54  0.50  0.48	Very limited ~wetness (very limited) ~too clayey (moderately limited) ~cutbanks cave (slightly limited)	1.00  0.45  0.29

Table 12.--Construction Materials and Excavating--Continued

Map symbol and soil name	Source for roadfill		Source for sand		Source for gravel		Source for topsoil		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
SmC: Smithdale---	Not limited		Very limited ~excess fines (thickest layer) ~excess fines (bottom layer)	1.00  1.00	Very limited ~excess fines (bottom layer) ~excess fines (thickest layer)	1.00  1.00	Moderately limited ~too sandy (moderately limited) ~too acid (slightly limited) ~too clayey (slightly limited)	0.34  0.30  0.12	Slightly limited ~cutbanks cave (slightly limited)	0.29
SmD: Smithdale---	Not limited		Very limited ~excess fines (thickest layer) ~excess fines (bottom layer)	1.00  1.00	Very limited ~excess fines (bottom layer) ~excess fines (thickest layer)	1.00  1.00	Limited ~slope (limited) ~too sandy (moderately limited) ~too acid (slightly limited)	0.63  0.34  0.30	Limited ~slope (limited) ~cutbanks cave (slightly limited)	0.63  0.29
SmE: Smithdale---	Limited ~slope (limited)	0.75	Very limited ~excess fines (thickest layer) ~excess fines (bottom layer)	1.00  1.00	Very limited ~excess fines (bottom layer) ~excess fines (thickest layer)	1.00  1.00	Very limited ~slope (very limited) ~too sandy (moderately limited) ~too acid (slightly limited)	1.00  0.34  0.30	Very limited ~slope (very limited) ~cutbanks cave (slightly limited)	1.00  0.29
StB: Smithton----	Very limited ~wetness (very limited)	1.00	Very limited ~excess fines (thickest layer) ~excess fines (bottom layer)	1.00  1.00	Very limited ~excess fines (bottom layer) ~excess fines (thickest layer)	1.00  1.00	Very limited ~wetness (very limited) ~too sandy (limited) ~too acid (slightly limited)	1.00  0.80  0.30	Very limited ~wetness (very limited) ~cutbanks cave (slightly limited)	1.00  0.29
TrB: Trebloc-----	Very limited ~wetness (very limited) ~low strength (very limited) ~shrink-swell (moderately limited)	1.00  1.00  0.45	Very limited ~excess fines (thickest layer) ~excess fines (bottom layer)	1.00  1.00	Very limited ~excess fines (bottom layer) ~excess fines (thickest layer)	1.00  1.00	Very limited ~wetness (very limited) ~too acid (slightly limited) ~too clayey (slightly limited)	1.00  0.30  0.17	Very limited ~wetness (very limited) ~too clayey (moderately limited) ~cutbanks cave (slightly limited)	1.00  0.31  0.29

Table 12.--Construction Materials and Excavating--Continued

Map symbol and soil name	Source for roadfill		Source for sand		Source for gravel		Source for topsoil		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
UnA: Una-----	Very limited ~low strength (very limited) ~wetness (very limited) ~shrink-swell (very limited)	1.00  1.00  1.00	Very limited ~excess fines (thickest layer) ~excess fines (bottom layer)	1.00  1.00	Very limited ~excess fines (bottom layer) ~excess fines (thickest layer)	1.00  1.00	Very limited ~wetness (very limited) ~too clayey (very limited) ~too acid (slightly limited)	1.00  1.00  0.30	Very limited ~wetness (very limited) ~flooding (moderately limited) ~too clayey (moderately limited)	1.00  0.60  0.34
UpA: Una-----	Very limited ~low strength (very limited) ~wetness (very limited) ~shrink-swell (very limited)	1.00  1.00  1.00	Very limited ~excess fines (thickest layer) ~excess fines (bottom layer)	1.00  1.00	Very limited ~excess fines (bottom layer) ~excess fines (thickest layer)	1.00  1.00	Very limited ~wetness (very limited) ~too clayey (very limited) ~too acid (slightly limited)	1.00  1.00  0.30	Very limited ~ponded (wetness) (very limited) ~wetness (very limited) ~flooding (moderately limited)	1.00  1.00  0.60
W: Water-----	Not rated		Not rated		Not rated		Not rated		Not rated	
WaC: Warnock----	Not limited		Very limited ~excess fines (thickest layer) ~excess fines (bottom layer)	1.00  1.00	Very limited ~excess fines (bottom layer) ~excess fines (thickest layer)	1.00  1.00	Moderately limited ~too acid (moderately limited) ~too sandy (moderately limited) ~too clayey (slightly limited)	0.54  0.40  0.08	Limited ~wetness (limited) ~cutbanks cave (slightly limited)	0.95  0.29
WsC: Warnock----	Not limited		Very limited ~excess fines (thickest layer) ~excess fines (bottom layer)	1.00  1.00	Very limited ~excess fines (bottom layer) ~excess fines (thickest layer)	1.00  1.00	Moderately limited ~too acid (moderately limited) ~too sandy (moderately limited) ~too clayey (slightly limited)	0.54  0.54  0.08	Limited ~wetness (limited) ~cutbanks cave (slightly limited)	0.95  0.29
Smithdale----	Not limited		Very limited ~excess fines (thickest layer) ~excess fines (bottom layer)	1.00  1.00	Very limited ~excess fines (bottom layer) ~excess fines (thickest layer)	1.00  1.00	Moderately limited ~too sandy (moderately limited) ~too acid (slightly limited) ~too clayey (slightly limited)	0.34  0.30  0.12	Slightly limited ~cutbanks cave (slightly limited)	0.29

Table 13.--Water Management

[The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table]

Map symbol and soil name	Pond reservoir areas		Drainage		Irrigation		Terraces and diversions		Grassed waterways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
AaA: Amy-----	Not limited		Moderately limited ~percs slowly (moderately limited)	0.39	Moderately limited ~erodes easily (moderately limited) ~percs slowly (moderately limited)	0.60 0.39	Very limited ~wetness (very limited) ~erodes easily (moderately limited)	1.00 0.60	Very limited ~wetness (very limited) ~erodes easily (moderately limited)	1.00 0.60
AgB: Amy-----	Not limited		Moderately limited ~percs slowly (moderately limited)	0.39	Moderately limited ~erodes easily (moderately limited) ~percs slowly (moderately limited)	0.60 0.39	Very limited ~wetness (very limited) ~erodes easily (moderately limited)	1.00 0.60	Very limited ~wetness (very limited) ~erodes easily (moderately limited)	1.00 0.60
Gurdon-----	Moderately limited ~seepage (moderately limited)	0.50	Not limited		Moderately limited ~erodes easily (moderately limited)	0.60	Moderately limited ~erodes easily (moderately limited) ~wetness (moderately limited)	0.60 0.60	Moderately limited ~erodes easily (moderately limited) ~wetness (moderately limited)	0.60 0.60
AnC: Angie-----	Slightly limited ~slope (slightly limited)	0.20	Limited ~slope (limited) ~percs slowly (moderately limited)	0.78 0.39	Limited ~slope (limited) ~percs slowly (moderately limited)	0.78 0.39	Slightly limited ~slope (slightly limited)	0.20	Slightly limited ~slope (slightly limited)	0.20
AtA: Aquents-----	Not limited		Not rated		Not rated		Not rated		Not rated	
BbA: Bibb-----	Moderately limited ~seepage (moderately limited)	0.50	Limited ~flooding (limited)	0.90	Limited ~flooding (limited)	0.90	Very limited ~wetness (very limited)	1.00	Very limited ~wetness (very limited)	1.00
BrC: Briley-----	Very limited ~seepage (very limited) ~slope (slightly limited)	1.00 0.20	Limited ~cutbanks cave (limited) ~slope (limited)	0.90 0.78	Limited ~fast intake (limited) ~slope (limited)	0.90 0.78	Slightly limited ~slope (slightly limited)	0.20	Slightly limited ~slope (slightly limited)	0.20
DAM: Dam-----	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 13.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Drainage		Irrigation		Terraces and diversions		Grassed waterways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
DdC:										
Darden-----	Very limited ~seepage (very limited)	1.00	Limited ~cutbanks cave (limited)	0.90	Limited ~fast intake (limited)	0.90	Moderately limited ~too sandy (moderately limited)	0.60	Limited ~droughty (limited)	0.69
	~slope (slightly limited)	0.20	~slope (limited)	0.78	~slope (limited)	0.78	~slope (slightly limited)	0.20	~slope (slightly limited)	0.20
					~droughty (limited)	0.69				
DdD:										
Darden-----	Very limited ~seepage (very limited)	1.00	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00	Limited ~slope (limited)	0.99	Limited ~slope (limited)	0.99
	~slope (limited)	0.99	~cutbanks cave (limited)	0.90	~fast intake (limited)	0.90	~too sandy (moderately limited)	0.60	~droughty (limited)	0.69
					~droughty (limited)	0.69				
GrB:										
Gurdon-----	Moderately limited ~seepage (moderately limited)	0.50	Not limited		Moderately limited ~erodes easily (moderately limited)	0.60	Moderately limited ~erodes easily (moderately limited)	0.60	Moderately limited ~erodes easily (moderately limited)	0.60
							~wetness (moderately limited)	0.60	~wetness (moderately limited)	0.60
GyA:										
Guyton-----	Not limited		Limited ~flooding (limited)	0.90	Limited ~flooding (limited)	0.90	Very limited ~wetness (very limited)	1.00	Very limited ~wetness (very limited)	1.00
			~percs slowly (moderately limited)	0.39	~erodes easily (moderately limited)	0.60	~erodes easily (moderately limited)	0.60	~erodes easily (moderately limited)	0.60
					~percs slowly (moderately limited)	0.39				
HaC:										
Harleston---	Moderately limited ~seepage (moderately limited)	0.50	Limited ~slope (limited)	0.78	Limited ~slope (limited)	0.78	Slightly limited ~wetness (slightly limited)	0.28	Slightly limited ~wetness (slightly limited)	0.28
	~slope (slightly limited)	0.20					~slope (slightly limited)	0.20	~slope (slightly limited)	0.20
LVS:										
Levee-----	Not rated		Not rated		Not rated		Not rated		Not rated	
OfA:										
Oil-waste land-----	Not rated		Not rated		Not rated		Not rated		Not rated	
Fluvaquents-	Not limited		Not rated		Not rated		Not rated		Not rated	

Table 13.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Drainage		Irrigation		Terraces and diversions		Grassed waterways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
RuB: Ruston-----	Moderately limited ~seepage (moderately limited)	0.50	Limited ~cutbanks cave (limited)	0.90	Not limited		Not limited		Not limited	
RwC: Rosalie-----	Very limited ~seepage (very limited)	1.00	Limited ~cutbanks cave (limited)	0.90	Limited ~fast intake (limited)	0.90	Slightly limited ~slope (slightly limited)	0.20	Slightly limited ~slope (slightly limited)	0.20
	~slope (slightly limited)	0.20	~slope (limited)	0.78	~slope (limited)	0.78			~droughty (slightly limited)	0.03
					~droughty (slightly limited)	0.03				
Warnock-----	Moderately limited ~seepage (moderately limited)	0.50	Limited ~slope (limited)	0.78	Limited ~slope (limited)	0.78	Slightly limited ~slope (slightly limited)	0.20	Slightly limited ~slope (slightly limited)	0.20
	~slope (slightly limited)	0.20								
SaC: Sacul-----	Slightly limited ~slope (slightly limited)	0.20	Limited ~cutbanks cave (limited)	0.90	Limited ~slope (limited)	0.78	Slightly limited ~slope (slightly limited)	0.20	Slightly limited ~slope (slightly limited)	0.20
			~slope (limited)	0.78	~percs slowly (moderately limited)	0.39				
			~percs slowly (moderately limited)	0.39						
SaD: Sacul-----	Limited ~slope (limited)	0.99	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00	Limited ~slope (limited)	0.99	Limited ~slope (limited)	0.99
			~cutbanks cave (limited)	0.90	~percs slowly (moderately limited)	0.39				
			~percs slowly (moderately limited)	0.39						
SaE: Sacul-----	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00
			~cutbanks cave (limited)	0.90	~percs slowly (moderately limited)	0.39				
			~percs slowly (moderately limited)	0.39						



Table 13.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Drainage		Irrigation		Terraces and diversions		Grassed waterways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
ScC:										
Sacul-----	Slightly limited ~slope (slightly limited)	0.20	Limited ~cutbanks cave (limited) ~slope (limited) ~percs slowly (moderately limited)	0.90 0.78 0.39	Limited ~slope (limited) ~percs slowly (moderately limited)	0.78 0.39	Slightly limited ~slope (slightly limited)	0.20	Slightly limited ~slope (slightly limited)	0.20
Sawyer-----	Slightly limited ~slope (slightly limited)	0.20	Limited ~slope (limited) ~percs slowly (moderately limited)	0.78 0.39	Limited ~slope (limited) ~erodes easily (moderately limited) ~percs slowly (moderately limited)	0.78 0.60 0.39	Moderately limited ~erodes easily (moderately limited) ~wetness (moderately limited) ~slope (slightly limited)	0.60 0.44 0.20	Moderately limited ~erodes easily (moderately limited) ~wetness (moderately limited) ~slope (slightly limited)	0.60 0.44 0.20
ScD:										
Sacul-----	Limited ~slope (limited)	0.99	Very limited ~slope (very limited) ~cutbanks cave (limited) ~percs slowly (moderately limited)	1.00 0.90 0.39	Very limited ~slope (very limited) ~percs slowly (moderately limited)	1.00 0.39	Limited ~slope (limited)	0.99	Limited ~slope (limited)	0.99
Sawyer-----	Limited ~slope (limited)	0.99	Very limited ~slope (very limited) ~percs slowly (moderately limited)	1.00 0.39	Very limited ~slope (very limited) ~erodes easily (moderately limited) ~percs slowly (moderately limited)	1.00 0.60 0.39	Limited ~slope (limited) ~erodes easily (moderately limited) ~wetness (moderately limited)	0.99 0.60 0.44	Limited ~slope (limited) ~erodes easily (moderately limited) ~wetness (moderately limited)	0.99 0.60 0.44
SeC:										
Sawyer-----	Slightly limited ~slope (slightly limited)	0.20	Limited ~slope (limited) ~percs slowly (moderately limited)	0.78 0.39	Limited ~slope (limited) ~erodes easily (moderately limited) ~percs slowly (moderately limited)	0.78 0.60 0.39	Moderately limited ~erodes easily (moderately limited) ~wetness (moderately limited) ~slope (slightly limited)	0.60 0.44 0.20	Moderately limited ~erodes easily (moderately limited) ~wetness (moderately limited) ~slope (slightly limited)	0.60 0.44 0.20
SmC:										
Smithdale---	Very limited ~seepage (very limited) ~slope (moderately limited)	1.00 0.30	Limited ~slope (limited)	0.98	Limited ~slope (limited)	0.98	Moderately limited ~slope (moderately limited)	0.30	Moderately limited ~slope (moderately limited)	0.30

Table 13.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Drainage		Irrigation		Terraces and diversions		Grassed waterways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
SmD: Smithdale---	Very limited ~seepage (very limited) ~slope (limited)	1.00  0.99	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00	Limited ~slope (limited)	0.99	Limited ~slope (limited)	0.99
SmE: Smithdale---	Very limited ~slope (very limited) ~seepage (very limited)	1.00  1.00	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00
StB: Smithton---	Moderately limited ~seepage (moderately limited)	0.50	Slightly limited ~percs slowly (slightly limited)	0.17	Slightly limited ~percs slowly (slightly limited)	0.17	Very limited ~wetness (very limited)	1.00	Very limited ~wetness (very limited)	1.00
TrB: Trebloc----	Not limited		Moderately limited ~percs slowly (moderately limited)	0.40	Moderately limited ~erodes easily (moderately limited) ~percs slowly (moderately limited)	0.60 0.40	Very limited ~wetness (very limited) ~erodes easily (moderately limited)	1.00 0.60	Very limited ~wetness (very limited) ~erodes easily (moderately limited)	1.00 0.60
UnA: Una-----	Not limited		Very limited ~percs slowly (very limited) ~flooding (limited)	1.00 0.90	Very limited ~percs slowly (very limited) ~flooding (limited) ~slow intake (moderately limited)	1.00 0.90 0.60	Very limited ~wetness (very limited)	1.00	Very limited ~wetness (very limited)	1.00
UpA: Una-----	Not limited		Very limited ~ponded (wetness) (very limited) ~percs slowly (very limited) ~flooding (limited)	1.00 1.00 0.90	Very limited ~ponded (wetness) (very limited) ~percs slowly (very limited) ~flooding (limited)	1.00 1.00 0.90	Very limited ~ponded (wetness) (very limited) ~wetness (very limited)	1.00 1.00	Very limited ~wetness (very limited)	1.00
W: Water-----	Not rated		Not rated		Not rated		Not rated		Not rated	
WaC: Warnock----	Moderately limited ~seepage (moderately limited) ~slope (slightly limited)	0.50  0.10	Moderately limited ~slope (moderately limited)	0.40	Moderately limited ~slope (moderately limited)	0.40	Slightly limited ~slope (slightly limited)	0.10	Slightly limited ~slope (slightly limited)	0.10

Table 13.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Drainage		Irrigation		Terraces and diversions		Grassed waterways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
WsC:										
Warnock----	Moderately limited		Moderately limited		Moderately limited		Slightly limited		Slightly limited	
	~seepage	0.50	~slope	0.40	~slope	0.40	~slope	0.10	~slope	0.10
	(moderately limited)		(moderately limited)		(moderately limited)		(slightly limited)		(slightly limited)	
	~slope	0.10								
	(slightly limited)									
Smithdale---	Very limited		Moderately limited		Moderately limited		Slightly limited		Slightly limited	
	~seepage	1.00	~slope	0.40	~slope	0.40	~slope	0.10	~slope	0.10
	(very limited)		(moderately limited)		(moderately limited)		(slightly limited)		(slightly limited)	
	~slope	0.10								
	(slightly limited)									

Table 14.--Agricultural Waste Management

[The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table]

Map symbol and soil name	Land application of manure and food-processing waste		Land application of municipal sewage sludge		Disposal of wastewater by irrigation		Treatment of wastewater by slow rate process		Treatment of wastewater by rapid infiltration process	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
AaA:										
Amy-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~wetness	1.00	~wetness	1.00	~wetness	1.00	~wetness	1.00	~percs slowly	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~percs slowly	0.60	~percs slowly	0.60	~percs slowly	0.60	~percs slowly	0.60	~wetness	1.00
	(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)		(very limited)	
	~flooding	0.30	~flooding	0.30	~flooding	0.30	~flooding	0.30		
	(slightly limited)		(slightly limited)		(slightly limited)		(slightly limited)			
AgB:										
Amy-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~wetness	1.00	~wetness	1.00	~wetness	1.00	~wetness	1.00	~percs slowly	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~percs slowly	0.60	~percs slowly	0.60	~percs slowly	0.60	~percs slowly	0.60	~wetness	1.00
	(limited)		(limited)		(limited)		(limited)		(very limited)	
	~flooding	0.30	~flooding	0.30	~flooding	0.30	~flooding	0.30		
	(slightly limited)		(slightly limited)		(slightly limited)		(slightly limited)			
Gurdon-----	Moderately limited		Moderately limited		Moderately limited		Moderately limited		Very limited	
	~wetness	0.60	~wetness	0.60	~wetness	0.60	~wetness	0.60	~percs slowly	1.00
	(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)		(very limited)	
	~too acid	0.42	~too acid	0.42	~too acid	0.42	~too acid	0.42	~wetness	1.00
	(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)		(very limited)	
	~flooding	0.30	~flooding	0.30	~flooding	0.30	~flooding	0.30	~too acid	0.03
	(slightly limited)		(slightly limited)		(slightly limited)		(slightly limited)		(slightly limited)	
AnC:										
Angie-----	Limited		Limited		Limited		Limited		Very limited	
	~percs slowly	0.99	~percs slowly	0.99	~percs slowly	0.99	~percs slowly	0.99	~percs slowly	1.00
	(limited)		(limited)		(limited)		(limited)		(very limited)	
					~slope	0.20	~slope	0.20	~wetness	0.99
					(slightly limited)		(slightly limited)		(limited)	
									~slope	0.66
									(limited)	
AtA:										
Aquents-----	Not rated		Not rated		Not rated		Not rated		Not rated	
BbA:										
Bibb-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~wetness	1.00	~wetness	1.00	~wetness	1.00	~flooding	1.00	~percs slowly	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~flooding	1.00	~flooding	1.00	~flooding	1.00	~wetness	1.00	~wetness	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~too acid	0.54	~too acid	0.54	~too acid	0.54	~too acid	0.54	~flooding	1.00
	(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)		(very limited)	

Table 14.--Agricultural Waste Management--Continued

Map symbol and soil name	Land application of manure and food-processing waste		Land application of municipal sewage sludge		Disposal of wastewater by irrigation		Treatment of wastewater by slow rate process		Treatment of wastewater by rapid infiltration process	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
BrC: Briley-----	Very limited ~poor filter (very limited)	1.00	Very limited ~poor filter (very limited)	1.00	Very limited ~poor filter (very limited) ~slope (slightly limited)	1.00 0.20	Very limited ~poor filter (very limited) ~slope (slightly limited)	1.00 0.20	Limited ~slope (limited)	0.66
DAM: Dam-----	Not rated		Not rated		Not rated		Not rated		Not rated	
DdC: Darden-----	Very limited ~poor filter (very limited) ~droughty (limited)	1.00 0.69	Very limited ~poor filter (very limited) ~droughty (limited)	1.00 0.69	Very limited ~poor filter (very limited) ~droughty (limited) ~slope (slightly limited)	1.00 0.69 0.20	Very limited ~poor filter (very limited) ~slope (slightly limited)	1.00 0.20	Limited ~slope (limited)	0.66
DdD: Darden-----	Very limited ~poor filter (very limited) ~slope (limited) ~droughty (limited)	1.00 0.76 0.69	Very limited ~poor filter (very limited) ~slope (limited) ~droughty (limited)	1.00 0.76 0.69	Very limited ~poor filter (very limited) ~slope (limited) ~droughty (limited)	1.00 0.99 0.69	Very limited ~poor filter (very limited) ~slope (limited)	1.00 0.99	Very limited ~slope (very limited)	1.00
GrB: Gurdon-----	Moderately limited ~wetness (moderately limited) ~too acid (moderately limited) ~flooding (slightly limited)	0.60 0.42 0.30	Moderately limited ~wetness (moderately limited) ~too acid (moderately limited) ~flooding (slightly limited)	0.60 0.42 0.30	Moderately limited ~wetness (moderately limited) ~too acid (moderately limited) ~flooding (slightly limited)	0.60 0.42 0.30	Moderately limited ~wetness (moderately limited) ~too acid (moderately limited) ~flooding (slightly limited)	0.60 0.42 0.30	Very limited ~percs slowly (very limited) ~wetness (very limited) ~too acid (slightly limited)	1.00 1.00 0.03
GyA: Guyton-----	Very limited ~wetness (very limited) ~flooding (very limited) ~percs slowly (limited)	1.00 1.00 0.60	Very limited ~wetness (very limited) ~flooding (very limited) ~percs slowly (limited)	1.00 1.00 0.60	Very limited ~wetness (very limited) ~flooding (very limited) ~percs slowly (limited)	1.00 1.00 0.60	Very limited ~flooding (very limited) ~wetness (very limited) ~percs slowly (limited)	1.00 1.00 0.60	Very limited ~percs slowly (very limited) ~wetness (very limited) ~flooding (very limited)	1.00 1.00 1.00

Table 14.--Agricultural Waste Management--Continued

Map symbol and soil name	Land application of manure and food-processing waste		Land application of municipal sewage sludge		Disposal of wastewater by irrigation		Treatment of wastewater by slow rate process		Treatment of wastewater by rapid infiltration process	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
HaC: Harleston----	Moderately limited ~too acid (moderately limited) ~wetness (slightly limited)	0.54  0.28	Moderately limited ~too acid (moderately limited) ~wetness (slightly limited)	0.54  0.28	Moderately limited ~too acid (moderately limited) ~wetness (slightly limited) ~slope (slightly limited)	0.54  0.28  0.20	Moderately limited ~too acid (moderately limited) ~wetness (slightly limited) ~slope (slightly limited)	0.54  0.28  0.20	Very limited ~percs slowly (very limited) ~wetness (very limited) ~slope (limited)	1.00  1.00  0.66
LVS: Levee-----	Not rated		Not rated		Not rated		Not rated		Not rated	
OfA: Oil-waste land-----	Not rated		Not rated		Not rated		Not rated		Not rated	
Fluvaquents-	Not rated		Not rated		Not rated		Not rated		Not rated	
RuB: Ruston-----	Not limited		Not limited		Not limited		Not limited		Very limited ~percs slowly (very limited)	1.00
RwC: Rosalie-----	Very limited ~poor filter (very limited) ~droughty (slightly limited)	1.00  0.03	Very limited ~poor filter (very limited) ~droughty (slightly limited)	1.00  0.03	Very limited ~poor filter (very limited) ~slope (slightly limited) ~droughty (slightly limited)	1.00  0.20  0.03	Very limited ~poor filter (very limited) ~slope (slightly limited)	1.00  0.20	Limited ~slope (limited) ~too acid (slightly limited)	0.66  0.14
Warnock----	Moderately limited ~too acid (moderately limited)	0.54	Moderately limited ~too acid (moderately limited)	0.54	Moderately limited ~too acid (moderately limited) ~slope (slightly limited)	0.54  0.20	Moderately limited ~too acid (moderately limited) ~slope (slightly limited)	0.54  0.20	Very limited ~percs slowly (very limited) ~wetness (very limited) ~slope (limited)	1.00  1.00  0.66
SaC: Sacul-----	Limited ~percs slowly (limited) ~too acid (slightly limited)	0.99  0.12	Limited ~percs slowly (limited) ~too acid (slightly limited)	0.99  0.12	Limited ~percs slowly (limited) ~slope (slightly limited) ~too acid (slightly limited)	0.99  0.20  0.12	Limited ~percs slowly (limited) ~slope (slightly limited) ~too acid (slightly limited)	0.99  0.20  0.12	Very limited ~percs slowly (very limited) ~wetness (very limited) ~slope (limited)	1.00  1.00  0.66

Table 14.--Agricultural Waste Management--Continued

Map symbol and soil name	Land application of manure and food-processing waste		Land application of municipal sewage sludge		Disposal of wastewater by irrigation		Treatment of wastewater by slow rate process		Treatment of wastewater by rapid infiltration process	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
SaD: Sacul-----	Limited ~percs slowly (limited) ~slope (limited) ~too acid (slightly limited)	0.99 0.76 0.12	Limited ~percs slowly (limited) ~slope (limited) ~too acid (slightly limited)	0.99 0.76 0.12	Limited ~slope (limited) ~percs slowly (limited) ~too acid (slightly limited)	0.99 0.99 0.12	Limited ~slope (limited) ~percs slowly (limited) ~too acid (slightly limited)	0.99 0.99 0.12	Very limited ~percs slowly (very limited) ~slope (very limited) ~wetness (very limited)	1.00 1.00 1.00
SaE: Sacul-----	Very limited ~slope (very limited) ~percs slowly (limited) ~too acid (slightly limited)	1.00 0.99 0.12	Very limited ~slope (very limited) ~percs slowly (limited) ~too acid (slightly limited)	1.00 0.99 0.12	Very limited ~slope (very limited) ~percs slowly (limited) ~too acid (slightly limited)	1.00 0.99 0.12	Very limited ~slope (very limited) ~percs slowly (limited) ~too acid (slightly limited)	1.00 0.99 0.12	Very limited ~percs slowly (very limited) ~slope (very limited) ~wetness (very limited)	1.00 1.00 1.00
ScC: Sacul-----	Limited ~percs slowly (limited) ~too acid (slightly limited)	0.99 0.12	Limited ~percs slowly (limited) ~too acid (slightly limited)	0.99 0.12	Limited ~percs slowly (limited) ~slope (slightly limited) ~too acid (slightly limited)	0.99 0.20 0.12	Limited ~percs slowly (limited) ~slope (slightly limited) ~too acid (slightly limited)	0.99 0.20 0.12	Very limited ~percs slowly (very limited) ~wetness (very limited) ~slope (limited)	1.00 1.00 0.66
Sawyer-----	Limited ~percs slowly (limited) ~too acid (moderately limited) ~wetness (moderately limited)	0.99 0.54 0.44	Limited ~percs slowly (limited) ~too acid (moderately limited) ~wetness (moderately limited)	0.99 0.54 0.44	Limited ~percs slowly (limited) ~too acid (moderately limited) ~wetness (moderately limited)	0.99 0.54 0.44	Limited ~percs slowly (limited) ~too acid (moderately limited) ~wetness (moderately limited)	0.99 0.54 0.44	Very limited ~percs slowly (very limited) ~wetness (very limited) ~slope (limited)	1.00 1.00 0.66
ScD: Sacul-----	Limited ~percs slowly (limited) ~slope (limited) ~too acid (slightly limited)	0.99 0.76 0.12	Limited ~percs slowly (limited) ~slope (limited) ~too acid (slightly limited)	0.99 0.76 0.12	Limited ~slope (limited) ~percs slowly (limited) ~too acid (slightly limited)	0.99 0.99 0.12	Limited ~slope (limited) ~percs slowly (limited) ~too acid (slightly limited)	0.99 0.99 0.12	Very limited ~percs slowly (very limited) ~slope (very limited) ~wetness (very limited)	1.00 1.00 1.00
Sawyer-----	Limited ~percs slowly (limited) ~slope (limited) ~too acid (moderately limited)	0.99 0.76 0.54	Limited ~percs slowly (limited) ~slope (limited) ~too acid (moderately limited)	0.99 0.76 0.54	Limited ~slope (limited) ~percs slowly (limited) ~too acid (moderately limited)	0.99 0.99 0.54	Limited ~slope (limited) ~percs slowly (limited) ~too acid (moderately limited)	0.99 0.99 0.54	Very limited ~percs slowly (very limited) ~slope (very limited) ~wetness (very limited)	1.00 1.00 1.00



Table 14.--Agricultural Waste Management--Continued

Map symbol and soil name	Land application of manure and food-processing waste		Land application of municipal sewage sludge		Disposal of wastewater by irrigation		Treatment of wastewater by slow rate process		Treatment of wastewater by rapid infiltration process	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
SeC: Sawyer-----	Limited ~percs slowly (limited) ~too acid (moderately limited) ~wetness (moderately limited)	0.99 0.54 0.44	Limited ~percs slowly (limited) ~too acid (moderately limited) ~wetness (moderately limited)	0.99 0.54 0.44	Limited ~percs slowly (limited) ~too acid (moderately limited) ~wetness (moderately limited)	0.99 0.54 0.44	Limited ~percs slowly (limited) ~too acid (moderately limited) ~wetness (moderately limited)	0.99 0.54 0.44	Very limited ~percs slowly (very limited) ~wetness (very limited) ~slope (limited)	1.00 1.00 0.66
SmC: Smithdale---	Slightly limited ~too acid (slightly limited)	0.30	Slightly limited ~too acid (slightly limited)	0.30	Moderately limited ~slope (moderately limited) ~too acid (slightly limited)	0.30 0.30	Moderately limited ~slope (moderately limited) ~too acid (slightly limited)	0.30 0.30	Very limited ~percs slowly (very limited) ~slope (limited)	1.00 0.91
SmD: Smithdale---	Limited ~slope (limited) ~too acid (slightly limited)	0.76 0.30	Limited ~slope (limited) ~too acid (slightly limited)	0.76 0.30	Limited ~slope (limited) ~too acid (slightly limited)	0.99 0.30	Limited ~slope (limited) ~too acid (slightly limited)	0.99 0.30	Very limited ~percs slowly (very limited) ~slope (very limited)	1.00 1.00
SmE: Smithdale---	Very limited ~slope (very limited) ~too acid (slightly limited)	1.00 0.30	Very limited ~slope (very limited) ~too acid (slightly limited)	1.00 0.30	Very limited ~slope (very limited) ~too acid (slightly limited)	1.00 0.30	Very limited ~slope (very limited) ~too acid (slightly limited)	1.00 0.30	Very limited ~percs slowly (very limited) ~slope (very limited)	1.00 1.00
StB: Smithton----	Very limited ~wetness (very limited) ~too acid (slightly limited)	1.00 0.30	Very limited ~wetness (very limited) ~too acid (slightly limited)	1.00 0.30	Very limited ~wetness (very limited) ~too acid (slightly limited)	1.00 0.30	Very limited ~wetness (very limited) ~too acid (slightly limited)	1.00 0.30	Very limited ~percs slowly (very limited) ~wetness (very limited)	1.00 1.00
TrB: Trebloc-----	Very limited ~wetness (very limited) ~percs slowly (limited) ~too acid (slightly limited)	1.00 0.60 0.30	Very limited ~wetness (very limited) ~percs slowly (limited) ~too acid (slightly limited)	1.00 0.60 0.30	Very limited ~wetness (very limited) ~percs slowly (limited) ~too acid (slightly limited)	1.00 0.60 0.30	Very limited ~wetness (very limited) ~percs slowly (limited) ~too acid (slightly limited)	1.00 0.60 0.30	Very limited ~percs slowly (very limited) ~wetness (very limited)	1.00 1.00

Table 14.--Agricultural Waste Management--Continued

Map symbol and soil name	Land application of manure and food-processing waste		Land application of municipal sewage sludge		Disposal of wastewater by irrigation		Treatment of wastewater by slow rate process		Treatment of wastewater by rapid infiltration process	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
UnA: Una-----	Very limited ~wetness (very limited) ~flooding (very limited) ~percs slowly (very limited)	1.00	Very limited ~wetness (very limited) ~percs slowly (very limited) ~flooding (very limited)	1.00	Very limited ~percs slowly (very limited) ~wetness (very limited) ~flooding (very limited)	1.00	Very limited ~flooding (very limited) ~percs slowly (very limited) ~wetness (very limited)	1.00	Very limited ~percs slowly (very limited) ~wetness (very limited) ~flooding (very limited)	1.00
UpA: Una-----	Very limited ~wetness (very limited) ~flooding (very limited) ~ponded (wetness) (very limited)	1.00	Very limited ~wetness (very limited) ~percs slowly (very limited) ~ponded (wetness) (very limited)	1.00	Very limited ~percs slowly (very limited) ~ponded (wetness) (very limited) ~wetness (very limited)	1.00	Very limited ~flooding (very limited) ~percs slowly (very limited) ~ponded (wetness) (very limited)	1.00	Very limited ~percs slowly (very limited) ~ponded (wetness) (very limited) ~wetness (very limited)	1.00
W: Water-----	Not rated		Not rated		Not rated		Not rated		Not rated	
WaC: Warnock----	Moderately limited ~too acid (moderately limited)	0.54	Moderately limited ~too acid (moderately limited)	0.54	Moderately limited ~too acid (moderately limited) ~slope (slightly limited)	0.54 0.10	Moderately limited ~too acid (moderately limited) ~slope (slightly limited)	0.54 0.10	Very limited ~percs slowly (very limited) ~wetness (very limited) ~slope (moderately limited)	1.00 1.00 0.31
WsC: Warnock----	Moderately limited ~too acid (moderately limited)	0.54	Moderately limited ~too acid (moderately limited)	0.54	Moderately limited ~too acid (moderately limited) ~slope (slightly limited)	0.54 0.10	Moderately limited ~too acid (moderately limited) ~slope (slightly limited)	0.54 0.10	Very limited ~percs slowly (very limited) ~wetness (very limited) ~slope (moderately limited)	1.00 1.00 0.31
Smithdale---	Slightly limited ~too acid (slightly limited)	0.30	Slightly limited ~too acid (slightly limited)	0.30	Slightly limited ~too acid (slightly limited) ~slope (slightly limited)	0.30 0.10	Slightly limited ~too acid (slightly limited) ~slope (slightly limited)	0.30 0.10	Very limited ~percs slowly (very limited) ~slope (moderately limited)	1.00 0.31

# Soil Survey of Union County, Arkansas

Table 15.--Engineering Index Properties

[Absence of an entry indicates that the data were not estimated]

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches						
							4	10	40	200		
	In				Pct	Pct					Pct	
AaA:												
Amy-----	0-5	Silt loam	CL, CL-ML, ML	A-4	0	0	100	95-100	85-100	50-90	15-30	NP-10
	5-16	Silt loam, loam, very fine sandy loam	CL-ML, ML	A-4	0	0	100	95-100	85-100	50-90	15-30	NP-7
	16-33	Silt loam, silty clay loam	CL	A-4, A-6	0	0	100	95-100	85-100	70-95	25-35	8-14
	33-80	Silt loam, silty clay loam, loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	85-100	60-95	15-35	4-15
AgB:												
Amy-----	0-5	Silt loam	CL-ML, ML, CL	A-4	0	0	100	95-100	85-100	50-90	15-40	2-17
	5-16	Silt loam, loam, very fine sandy loam	ML, CL-ML	A-4	0	0	100	95-100	85-100	50-90	15-33	2-13
	16-33	Silt loam, silty clay loam	CL	A-4, A-6	0	0	100	95-100	85-100	70-95	27-43	12-22
	33-80	Silt loam, silty clay loam, loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	85-100	60-95	22-44	7-25
Gurdon-----												
	0-3	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	85-100	50-90	15-20	NP-5
	3-10	Silt loam, very fine sandy loam, loam	CL-ML, ML	A-4	0	0	100	95-100	85-100	50-90	15-20	NP-5
	10-21	Silt loam, very fine sandy loam, loam	CL-ML, ML	A-4	0	0	100	95-100	85-100	50-90	15-25	3-7
	21-35	Silt loam, very fine sandy loam, loam	ML, CL-ML	A-4	0	0	100	95-100	85-100	50-90	15-25	3-7
	35-47	Silt loam, loam, silty clay loam	CL-ML, CL	A-4, A-6	0	0	100	95-100	85-100	60-95	20-40	5-15
	47-80	Silt loam, loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	85-100	60-95	20-40	5-15
AnC:												
Angie-----	0-5	Fine sandy loam	SM, SC-SM, ML, CL-ML	A-2, A-4	0	0	95-100	90-100	60-85	30-65	10-28	NP-10
	5-12	Fine sandy loam	SC-SM, SM, ML, CL-ML	A-2, A-4	0	0	95-100	90-100	60-85	30-65	10-28	NP-10
	12-33	Silty clay loam, silty clay, clay	CL, CH	A-7-6	0	0	95-100	90-100	85-100	75-95	41-55	18-29
	33-64	Silty clay loam, silty clay, clay	CL, CH	A-7-6	0	0	95-100	90-100	85-100	75-95	41-55	18-29
	64-80	Silty clay loam, silty clay, clay	CH, CL	A-7-6	0	0	95-100	90-100	85-100	75-95	41-55	18-29
AtA:												
Aquents.												

# Soil Survey of Union County, Arkansas

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
					Pct	Pct					Pct	
BbA: Bibb-----	In											
	0-5	Fine sandy loam	ML, CL-ML, SC-SM, SM	A-2, A-4	0	0-5	95-100	90-100	60-90	30-60	15-25	NP-7
	5-10	Fine sandy loam	CL-ML, SM, SC-SM, ML	A-2, A-4	0	0-5	95-100	90-100	60-90	30-60	15-25	NP-7
	10-80	Sandy loam, loam, silt loam	SM, SC-SM, ML, CL-ML	A-2, A-4	0	0-5	75-100	70-100	40-100	30-90	15-30	NP-7
BrC: Briley-----												
	0-12	Loamy fine sand	SM	A-2-4, A-4	0	0	95-100	95-100	80-100	17-45	15-25	NP-4
	12-21	Loamy fine sand	SM	A-2-4, A-4	0	0	97-100	95-100	80-100	17-45	15-25	NP-4
	21-80	Fine sandy loam, sandy clay loam	CL, SC	A-4, A-6	0	0	95-100	95-100	85-100	36-65	22-39	8-22
DAM: Dam.												
DdC: Darden-----												
	0-11	Loamy fine sand	SM, SP-SM	A-2, A-3	0	0	100	100	90-100	9-35	15-20	NP-3
	11-50	Loamy fine sand	SP-SM, SM	A-2	0	0	100	100	90-100	10-35	15-20	NP-3
	50-80	Loamy sand, loamy fine sand	SP-SM, SM	A-2	0	0	100	100	90-100	10-35	15-20	NP-3
DdD: Darden-----												
	0-11	Loamy fine sand	SP-SM, SM	A-2, A-3	0	0	100	100	90-100	9-35	15-20	NP-3
	11-50	Loamy fine sand	SP-SM, SM	A-2	0	0	100	100	90-100	10-35	15-20	NP-3
	50-80	Loamy sand, loamy fine sand	SM, SP-SM	A-2	0	0	100	100	90-100	10-35	15-20	NP-3
GrB: Gurdon-----												
	0-3	Silt loam	ML, CL-ML	A-4	0	0	100	95-100	85-100	50-90	15-20	NP-5
	3-10	Silt loam, very fine sandy loam, loam	ML, CL-ML	A-4	0	0	100	95-100	85-100	50-90	15-20	NP-5
	10-21	Silt loam, very fine sandy loam, loam	ML, CL-ML	A-4	0	0	100	95-100	85-100	50-90	15-25	3-7
	21-35	Silt loam, very fine sandy loam, loam	CL-ML, ML	A-4	0	0	100	95-100	85-100	50-90	15-25	3-7
	35-47	Silt loam, loam, silty clay loam	CL-ML, CL	A-4, A-6	0	0	100	95-100	85-100	60-95	20-40	5-15
	47-80	Silt loam, loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	85-100	60-95	20-40	5-15
GyA: Guyton-----												
	0-5	Silt loam	ML, CL-ML	A-4	0	0	100	100	95-100	65-90	15-27	NP-7
	5-13	Silt loam	CL-ML, ML	A-4	0	0	100	100	95-100	65-90	15-27	NP-7
	13-26	Silt loam, silty clay loam, clay loam	CL, CL-ML	A-4, A-6	0	0	100	100	94-100	75-95	22-40	6-18
	26-60	Silt loam, silty clay loam, clay loam	CL-ML, CL	A-4, A-6	0	0	100	100	94-100	75-95	22-40	6-18
	60-80	Silt loam, silty clay loam, sandy clay loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	95-100	50-95	15-40	NP-18

# Soil Survey of Union County, Arkansas

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
HaC: Harleston---	0-5	Fine sandy loam	CL-ML, ML, SC-SM, SM	A-2, A-4	0	0	90-100	85-100	60-85	30-55	15-25	NP-7
	5-9	Fine sandy loam	ML, SM, CL- ML, SC-SM	A-2, A-4	0	0	90-100	85-100	60-85	30-55	15-25	NP-7
	9-48	Sandy loam, loam, fine sandy loam	CL, CL-ML, SC, SC-SM	A-2, A-4	0	0	90-100	85-100	60-95	30-70	20-30	5-10
	48-80	Sandy loam, loam, sandy clay loam	CL, CL-ML, SC, SC-SM	A-2, A-4, A-6	0	0	90-100	85-100	60-95	30-70	20-35	5-13
LVS: Levee.												
OfA: Oil-waste land. Fluvaquents.												
RuB: Ruston-----	0-6	Fine sandy loam	SM, CL-ML, ML	A-2-4, A-4	0	0	100	85-100	65-85	30-55	15-20	NP-7
	6-15	Fine sandy loam	CL-ML, ML, SM	A-2-4, A-4	0	0	100	85-100	65-85	30-55	15-20	NP-7
	15-35	Sandy clay loam, loam, clay loam	CL, SC	A-6, A-7-6	0	0	100	85-100	80-95	36-75	25-45	11-20
	35-55	Fine sandy loam, sandy loam, loamy sand	CL-ML, ML, SC-SM, SM	A-2-4, A-4	0	0	100	85-100	65-85	30-75	15-27	NP-7
	55-80	Sandy clay loam, loam, clay loam	SC, CL	A-6, A-7-6	0	0	100	85-100	80-95	36-75	25-45	11-20
RwC: Rosalie-----	0-8	Loamy fine sand	SP-SM, SM	A-2-4	0	0	95-100	95-100	75-85	10-20	15-25	NP-3
	8-32	Loamy fine sand	SM, SP-SM	A-2-4	0	0	95-100	95-100	75-85	10-20	15-25	NP-3
	32-60	Sandy clay loam, clay loam	SC, CL	A-4, A-6	0	0	98-100	95-100	80-90	36-70	20-40	8-20
	60-80	Sandy clay loam, clay loam	CL, SC	A-4, A-6	0	0	98-100	95-100	80-90	36-70	20-40	8-20
Warnock-----	0-6	Fine sandy loam	SM, SC-SM	A-2, A-4	0	0	90-100	85-100	60-85	30-50	15-25	NP-7
	6-9	Fine sandy loam, sandy loam, loamy fine sand	SM, SC-SM	A-2, A-4	0	0	90-100	85-100	50-85	15-50	15-25	NP-7
	9-34	Loam, sandy clay loam, clay loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0	90-100	85-100	80-100	36-80	20-40	7-20
	34-80	Loam, sandy clay loam, clay loam	SC-SM, SC, CL-ML, CL	A-4, A-6	0	0	90-100	85-100	80-100	36-95	15-40	4-20

# Soil Survey of Union County, Arkansas

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
SaC: Sacul-----	0-5	Fine sandy loam	SM, SC-SM	A-2, A-4	0	0	75-100	75-100	45-85	25-50	15-25	NP-7
	5-12	Very fine sandy loam, fine sandy loam, loamy fine sand	CL-ML, SM, SC-SM, ML	A-1, A-2, A-4	0	0	75-100	75-100	40-95	12-75	15-30	NP-10
	12-31	Clay, silty clay, clay loam	SC, CH, CL	A-7	0	0	85-100	85-100	70-100	40-95	45-70	20-40
	31-50	Silty clay loam, clay loam, loam	CL, SC	A-2, A-4, A-6, A-7	0	0	85-100	85-100	65-100	30-95	25-48	8-25
	50-80	Silty clay loam, clay loam, loam	CL, SC	A-2, A-4, A-6, A-7	0	0	85-100	85-100	65-100	30-95	25-48	8-25
SaD: Sacul-----	0-5	Fine sandy loam	SC-SM, SM	A-2, A-4	0	0	75-100	75-100	45-85	25-50	15-25	NP-7
	5-12	Very fine sandy loam, fine sandy loam, loamy fine sand	SC-SM, CL-ML, ML, SM	A-1, A-2, A-4	0	0	75-100	75-100	40-95	12-75	15-30	NP-10
	12-31	Clay, silty clay, clay loam	CH, CL, SC	A-7	0	0	85-100	85-100	70-100	40-95	45-70	20-40
	31-50	Silty clay loam, clay loam, loam	CL, SC	A-2, A-4, A-6, A-7	0	0	85-100	85-100	65-100	30-95	25-48	8-25
	50-80	Silty clay loam, clay loam, loam	CL, SC	A-2, A-4, A-6, A-7	0	0	85-100	85-100	65-100	30-95	25-48	8-25
SaE: Sacul-----	0-5	Fine sandy loam	SM, SC-SM	A-2, A-4	0	0	75-100	75-100	45-85	25-50	15-25	NP-7
	5-12	Very fine sandy loam, fine sandy loam, loamy fine sand	CL-ML, ML, SC-SM, SM	A-1, A-2, A-4	0	0	75-100	75-100	40-95	12-75	15-30	NP-10
	12-31	Clay, silty clay, clay loam	CH, CL, SC	A-7	0	0	85-100	85-100	70-100	40-95	45-70	20-40
	31-50	Silty clay loam, clay loam, loam	CL, SC	A-2, A-4, A-6, A-7	0	0	85-100	85-100	65-100	30-95	25-48	8-25
	50-80	Silty clay loam, clay loam, loam	CL, SC	A-2, A-4, A-6, A-7	0	0	85-100	85-100	65-100	30-95	25-48	8-25
ScC: Sacul-----	0-5	Fine sandy loam	SC-SM, SM	A-2, A-4	0	0	75-100	75-100	45-85	25-50	15-25	NP-7
	5-12	Very fine sandy loam, fine sandy loam, loamy fine sand	SM, SC-SM, ML, CL-ML	A-1, A-2, A-4	0	0	75-100	75-100	40-95	12-75	15-30	NP-10
	12-31	Clay, silty clay, clay loam	CH, CL, SC	A-7	0	0	85-100	85-100	70-100	40-95	45-70	20-40
	31-50	Silty clay loam, clay loam, loam	CL, SC	A-2, A-4, A-6, A-7	0	0	85-100	85-100	65-100	30-95	25-48	8-25
	50-80	Silty clay loam, clay loam, loam	CL, SC	A-2, A-4, A-6, A-7	0	0	85-100	85-100	65-100	30-95	25-48	8-25

# Soil Survey of Union County, Arkansas

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
ScC: Sawyer-----	0-8	Very fine sandy loam	CL, CL-ML, ML	A-4	0	0	100	95-100	85-95	50-90	25-30	3-10
	8-13	Fine sandy loam, very fine sandy loam	CL-ML, ML, CL	A-4	0	0	100	95-100	85-95	50-90	25-30	3-10
	13-31	Silty clay loam, loam, silt loam	CL	A-6	0	0	100	95-100	85-95	60-95	30-40	10-20
	31-38	Silty clay, clay, silty clay loam	CL, CH	A-7	0	0	100	95-100	90-100	75-95	45-60	20-35
	38-66	Silty clay, clay, silty clay loam	CH, CL	A-7	0	0	100	95-100	90-100	75-95	45-60	20-35
	66-80	Silty clay, clay, silty clay loam	CH, CL	A-7	0	0	100	95-100	90-100	75-95	45-60	20-35
ScD: Sacul-----	0-5	Fine sandy loam	SC-SM, SM	A-2, A-4	0	0	75-100	75-100	45-85	25-50	15-25	NP-7
	5-12	Very fine sandy loam, fine sandy loam, loamy fine sand	SC-SM, CL-ML, ML, SM	A-1, A-2, A-4	0	0	75-100	75-100	40-95	12-75	15-30	NP-10
	12-31	Clay, silty clay, clay loam	SC, CL, CH	A-7	0	0	85-100	85-100	70-100	40-95	45-70	20-40
	31-50	Silty clay loam, clay loam, loam	SC, CL	A-2, A-4, A-6, A-7	0	0	85-100	85-100	65-100	30-95	25-48	8-25
	50-80	Silty clay loam, clay loam, loam	SC, CL	A-2, A-4, A-6, A-7	0	0	85-100	85-100	65-100	30-95	25-48	8-25
Sawyer-----	0-8	Very fine sandy loam	ML, CL-ML, CL	A-4	0	0	100	95-100	85-95	50-90	25-30	3-10
	8-13	Fine sandy loam, very fine sandy loam	ML, CL-ML, CL	A-4	0	0	100	95-100	85-95	50-90	25-30	3-10
	13-31	Silty clay loam, loam, silt loam	CL	A-6	0	0	100	95-100	85-95	60-95	30-40	10-20
	31-38	Silty clay, clay, silty clay loam	CL, CH	A-7	0	0	100	95-100	90-100	75-95	45-60	20-35
	38-66	Silty clay, clay, silty clay loam	CL, CH	A-7	0	0	100	95-100	90-100	75-95	45-60	20-35
	66-80	Silty clay, clay, silty clay loam	CL, CH	A-7	0	0	100	95-100	90-100	75-95	45-60	20-35



# Soil Survey of Union County, Arkansas

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
SeC: Sawyer-----	0-8	Very fine sandy loam	CL, CL-ML, ML	A-4	0	0	100	95-100	85-95	50-90	25-30	3-10
	8-13	Fine sandy loam	ML, CL-ML, CL	A-4	0	0	100	95-100	85-95	50-90	25-30	3-10
	13-31	Silty clay loam, loam, silt loam	CL	A-6	0	0	100	95-100	85-95	60-95	30-40	10-20
	31-38	Silty clay, clay, silty clay loam	CH, CL	A-7	0	0	100	95-100	90-100	75-95	45-60	20-35
	38-66	Silty clay, clay, silty clay loam	CH, CL	A-7	0	0	100	95-100	90-100	75-95	45-60	20-35
	66-80	Silty clay, clay, silty clay loam	CH, CL	A-7	0	0	100	95-100	90-100	75-95	45-60	20-35
SmC: Smithdale---	0-6	Fine sandy loam	SC-SM, SM	A-2, A-4	0	0	100	85-100	60-95	28-49	15-20	NP-5
	6-10	Fine sandy loam	SC-SM, SM	A-2, A-4	0	0	100	85-100	60-95	28-49	15-20	NP-5
	10-36	Clay loam, sandy clay loam, loam	SC-SM, SC, CL-ML, CL	A-4, A-6	0	0	100	85-100	80-96	45-75	23-38	7-16
	36-80	Loam, sandy loam	SM, SC, ML, CL	A-4	0	0	100	85-100	65-95	36-70	15-30	NP-10
SmD: Smithdale---	0-6	Fine sandy loam	SM, SC-SM	A-2, A-4	0	0	100	85-100	60-95	28-49	15-20	NP-5
	6-10	Fine sandy loam	SM, SC-SM	A-2, A-4	0	0	100	85-100	60-95	28-49	15-20	NP-5
	10-36	Clay loam, sandy clay loam, loam	SC, CL, CL-ML, SC-SM	A-4, A-6	0	0	100	85-100	80-96	45-75	23-38	7-16
	36-80	Loam, sandy loam	SM, CL, ML, SC	A-4	0	0	100	85-100	65-95	36-70	15-30	NP-10
SmE: Smithdale---	0-6	Fine sandy loam	SM, SC-SM	A-2, A-4	0	0	100	85-100	60-95	28-49	15-20	NP-5
	6-10	Fine sandy loam	SC-SM, SM	A-2, A-4	0	0	100	85-100	60-95	28-49	15-20	NP-5
	10-36	Clay loam, sandy clay loam, loam	CL, SC-SM, SC, CL-ML	A-4, A-6	0	0	100	85-100	80-96	45-75	23-38	7-16
	36-80	Loam, sandy loam	SM, SC, ML, CL	A-4	0	0	100	85-100	65-95	36-70	15-30	NP-10
StB: Smithton----	0-6	Fine sandy loam	SC-SM, SM	A-2, A-4	0	0	95-100	95-100	60-85	30-50	15-25	NP-5
	6-19	Fine sandy loam, sandy loam, loam	SM, CL-ML, SC-SM, ML	A-2, A-4	0	0	95-100	95-100	60-95	30-75	20-25	NP-5
	19-31	Fine sandy loam, loam, very fine sandy loam	CL-ML, ML, SC-SM, SM	A-2, A-4	0	0	95-100	95-100	60-95	30-90	15-25	NP-7
	31-80	Fine sandy loam, loam, sandy clay loam	CL-ML, SC, SC-SM, CL	A-2, A-4, A-6	0	0	95-100	95-100	60-95	30-95	15-35	NP-13

# Soil Survey of Union County, Arkansas

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
TrB:												
Trebloc-----	0-6	Silt loam	CL-ML, ML	A-4	0	0	100	100	85-100	60-90	15-30	NP-7
	6-9	Silt loam	ML, CL-ML	A-4	0	0	100	100	85-100	60-90	15-30	NP-7
	9-25	Silt loam, silty clay loam, loam	CL	A-4, A-6	0	0	100	100	85-100	85-100	25-40	8-16
	25-34	Silt loam, silty clay loam, loam	CL	A-4, A-6	0	0	100	100	85-100	85-100	25-40	8-16
	34-61	Silty clay loam, silty clay, clay loam	CL	A-4, A-6, A-7	0	0	100	100	85-100	85-100	25-48	8-21
	61-80	Silty clay loam, silty clay, clay loam	CL	A-4, A-6, A-7	0	0	100	100	85-100	85-100	25-48	8-21
UnA:												
Una-----	0-7	Silty clay loam	CH, CL	A-7	0	0	100	100	90-100	75-95	41-65	20-40
	7-80	Clay, silty clay loam, silty clay	CH, CL	A-7	0	0	100	100	90-100	75-95	41-65	20-40
UpA:												
Una-----	0-7	Silty clay loam	CL, CH	A-7	0	0	100	100	90-100	75-95	41-65	20-40
	7-80	Clay, silty clay loam, silty clay	CL, CH	A-7	0	0	100	100	90-100	75-95	41-65	20-40
W:												
Water.												
WaC:												
Warnock-----	0-6	Fine sandy loam	SC-SM, SM	A-2, A-4	0	0	90-100	85-100	60-85	30-50	15-25	NP-7
	6-9	Fine sandy loam, sandy loam, loamy fine sand	SC-SM, SM	A-2, A-4	0	0	90-100	85-100	50-85	15-50	15-25	NP-7
	9-34	Loam, sandy clay loam, clay loam	SC-SM, SC, CL-ML, CL	A-4, A-6	0	0	90-100	85-100	80-100	36-80	20-40	7-20
	34-80	Loam, sandy clay loam, clay loam	CL-ML, SC, SC-SM, CL	A-4, A-6	0	0	90-100	85-100	80-100	36-95	15-40	4-20
WsC:												
Warnock-----	0-6	Fine sandy loam	SC-SM, SM	A-2, A-4	0	0	90-100	85-100	60-85	30-50	15-25	NP-7
	6-9	Fine sandy loam, sandy loam, loamy fine sand	SC-SM, SM	A-2, A-4	0	0	90-100	85-100	50-85	15-50	15-25	NP-7
	9-34	Loam, sandy clay loam, clay loam	SC-SM, SC, CL-ML, CL	A-4, A-6	0	0	90-100	85-100	80-100	36-80	20-40	7-20
	34-80	Loam, sandy clay loam, clay loam	SC-SM, CL, CL-ML, SC	A-4, A-6	0	0	90-100	85-100	80-100	36-95	15-40	4-20
Smithdale---												
	0-6	Fine sandy loam	SC-SM, SM	A-2, A-4	0	0	100	85-100	60-95	28-49	15-20	NP-5
	6-10	Fine sandy loam	SC-SM, SM	A-2, A-4	0	0	100	85-100	60-95	28-49	15-20	NP-5
	10-36	Clay loam, sandy clay loam, loam	CL, CL-ML, SC-SM, SC	A-4, A-6	0	0	100	85-100	80-96	45-75	23-38	7-16
	36-80	Loam, sandy loam	ML, SC, SM, CL	A-4	0	0	100	85-100	65-95	36-70	15-30	NP-10

Table 16.--Physical and Chemical Properties of the Soils

[Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Wind erodibility index" apply only to the surface layer. Absence of an entry indicates that data were not estimated]

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Erosion factors			Wind erodi- bility group	Wind erodi- bility index	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Organic matter
							Kw	Kf	T						
	In	Pct	g/cc	µm/sec	In/in	Pct						meq/100 g	meq/100 g	pH	Pct
AaA:															
Amy-----	0-5	5-25	1.35-1.55	4.00-14.00	0.13-0.20	0.0-2.9	.43	.43	5	8	0	---	10-20	4.5-5.5	0.5-3.0
	5-16	5-20	1.35-1.55	4.00-14.00	0.13-0.20	0.0-2.9	.43	.43				---	5.0-15	4.5-5.5	0.5-1.0
	16-33	18-32	1.35-1.55	1.42-4.00	0.13-0.20	0.0-2.9	.43	.43				---	10-20	4.5-5.5	0.1-1.0
	33-80	12-35	1.35-1.55	0.42-1.42	0.13-0.20	0.0-2.9	.43	.43				---	10-20	4.5-5.5	0.0-0.5
AgB:															
Amy-----	0-5	5-25	1.35-1.55	4.00-14.00	0.13-0.20	0.0-2.9	.43	.43	5	8	0	---	10-20	4.5-5.5	0.5-3.0
	5-16	5-20	1.35-1.55	4.00-14.00	0.13-0.20	0.0-2.9	.43	.43				---	5.0-15	4.5-5.5	0.5-1.0
	16-33	18-32	1.35-1.55	1.40-4.00	0.13-0.20	0.0-2.9	.43	.43				---	10-20	4.5-5.5	0.1-1.0
	33-80	12-35	1.35-1.55	0.42-1.42	0.13-0.20	0.0-2.9	.43	.43				---	10-20	4.5-5.5	0.0-0.5
Gurdon-----	0-3	5-15	1.25-1.55	4.00-14.00	0.13-0.20	0.0-2.9	.43	.43	5	5	56	---	5.0-15	3.6-6.0	1.0-3.0
	3-10	5-15	1.25-1.55	4.00-14.00	0.13-0.20	0.0-2.9	.43	.43				---	5.0-15	3.6-6.0	0.5-1.0
	10-21	10-18	1.25-1.55	4.00-14.00	0.13-0.20	0.0-2.9	.43	.43				---	5.0-20	3.6-6.0	0.1-0.5
	21-35	10-18	1.25-1.55	4.00-14.00	0.13-0.20	0.0-2.9	.43	.43				---	5.0-20	3.6-6.0	0.1-0.5
	35-47	15-35	1.25-1.60	4.00-14.00	0.13-0.20	0.0-2.9	.43	.43				---	10-30	3.6-6.0	0.0-0.5
	47-80	15-35	1.25-1.60	1.40-4.20	0.13-0.20	0.0-2.9	.43	.43				---	10-30	3.6-6.0	0.0-0.5
AnC:															
Angie-----	0-5	4-14	1.35-1.65	4.00-42.00	0.10-0.15	0.0-2.9	.32	.32	5	3	86	2.0-15	---	4.5-6.5	0.5-3.0
	5-12	4-14	1.35-1.65	4.00-42.00	0.10-0.15	0.0-2.9	.32	.32				2.0-15	---	4.5-6.5	0.5-3.0
	12-33	35-60	1.20-1.60	0.42-1.40	0.16-0.22	6.0-8.9	.32	.32				---	15-50	3.6-6.0	0.0-0.5
	33-64	35-60	1.20-1.60	0.42-1.40	0.16-0.22	6.0-8.9	.32	.32				---	15-50	3.6-6.0	0.0-0.5
	64-80	35-60	1.20-1.60	0.42-1.40	0.16-0.22	6.0-8.9	.32	.32				---	15-50	3.6-6.0	0.0-0.5
AtA:															
Aquents.															
BbA:															
Bibb-----	0-5	2-18	1.50-1.70	4.00-14.00	0.12-0.18	0.0-2.9	.20	.20	5	3	86	---	4.0-7.0	3.6-5.5	1.0-3.0
	5-10	2-18	1.50-1.70	4.00-14.00	0.12-0.18	0.0-2.9	.20	.20				---	4.0-7.0	3.6-5.5	1.0-3.0
	10-80	2-18	1.45-1.75	4.00-14.00	0.10-0.20	0.0-2.9	.37	.37				---	4.0-10	3.6-5.5	0.1-1.0
BrC:															
Briley-----	0-12	5-15	1.50-1.65	42.00-141.00	0.07-0.11	0.0-2.9	.20	.20	5	2	134	5.0-10	---	4.5-6.5	0.5-2.0
	12-21	5-18	1.50-1.65	42.00-141.00	0.07-0.11	0.0-2.9	.20	.20				5.0-10	---	4.5-6.5	0.1-1.0
	21-80	15-35	1.55-1.69	4.00-14.00	0.13-0.17	0.0-2.9	.24	.24				---	10-25	4.5-6.0	0.1-0.5
DAM:															
Dam.															
DdC:															
Darden-----	0-11	2-10	1.20-1.60	42.00-141.00	0.05-0.09	0.0-2.9	.15	.15	5	1	310	2.0-10	---	4.5-7.3	0.5-1.0
	11-50	2-10	1.20-1.60	42.00-141.00	0.05-0.09	0.0-2.9	.15	.15				2.0-10	---	4.5-7.3	0.5-1.0
	50-80	2-10	1.20-1.60	42.00-141.00	0.05-0.09	0.0-2.9	.15	.15				2.0-10	---	4.5-7.3	0.5-1.0

Table 16.--Physical and Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Erosion factors			Wind erodi- bility group	Wind erodi- bility index	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Organic matter
							Kw	Kf	T						
	In	Pct	g/cc	µm/sec	In/in	Pct						meq/100 g	meq/100 g	pH	Pct
DdD:															
Darden-----	0-11	2-10	1.20-1.60	42.00-141.00	0.05-0.09	0.0-2.9	.15	.15	5	1	310	2.0-10	---	4.5-7.3	0.5-1.0
	11-50	2-10	1.20-1.60	42.00-141.00	0.05-0.09	0.0-2.9	.15	.15				2.0-10	---	4.5-7.3	0.5-1.0
	50-80	2-10	1.20-1.60	42.00-141.00	0.05-0.09	0.0-2.9	.15	.15				2.0-10	---	4.5-7.3	0.5-1.0
GrB:															
Gurdon-----	0-3	5-15	1.25-1.55	4.00-14.00	0.13-0.20	0.0-2.9	.43	.43	5	5	56	---	5.0-15	3.6-6.0	1.0-3.0
	3-10	5-15	1.25-1.55	4.00-14.00	0.13-0.20	0.0-2.9	.43	.43				---	5.0-15	3.6-6.0	0.1-1.0
	10-21	10-18	1.25-1.55	4.00-14.00	0.13-0.20	0.0-2.9	.43	.43				---	5.0-20	3.6-6.0	0.0-0.5
	21-35	10-18	1.25-1.55	4.00-14.00	0.13-0.20	0.0-2.9	.43	.43				---	5.0-20	3.6-6.0	0.0-0.5
	35-47	15-35	1.25-1.60	4.00-14.00	0.13-0.20	0.0-2.9	.43	.43				---	10-30	3.6-6.0	0.0-0.5
	47-80	15-35	1.25-1.60	1.41-4.20	0.13-0.20	0.0-2.9	.43	.43				---	10-30	3.6-6.0	0.0-0.5
GyA:															
Guyton-----	0-5	7-25	1.35-1.65	4.00-14.00	0.20-0.23	0.0-2.9	.43	.43	5	5	56	---	4.0-10	3.6-6.0	0.5-3.0
	5-13	7-25	1.35-1.65	4.00-14.00	0.20-0.23	0.0-2.9	.43	.43				---	4.0-10	3.6-6.0	0.5-1.0
	13-26	20-35	1.35-1.70	1.40-4.00	0.15-0.22	0.0-2.9	.37	.37				---	10-30	3.6-6.0	0.5-1.0
	26-60	20-35	1.35-1.70	0.42-1.40	0.15-0.22	0.0-2.9	.37	.37				---	10-30	3.6-6.0	0.5-1.0
	60-80	20-35	1.35-1.70	0.42-1.40	0.15-0.22	3.0-6.0	.37	.37				10-30	---	3.6-8.4	0.1-0.5
HaC:															
Harleston-----	0-5	2-8	1.35-1.65	4.00-42.00	0.08-0.16	0.0-2.9	.20	.20	5	5	56	---	2.0-10	3.6-5.5	0.5-2.0
	5-9	2-8	1.35-1.65	4.00-42.00	0.08-0.16	0.0-2.9	.20	.20				---	2.0-10	3.6-5.5	0.5-2.0
	9-48	8-18	1.55-1.65	4.00-14.00	0.13-0.16	0.0-2.9	.32	.32				---	5.0-15	4.5-5.5	0.1-1.0
	48-80	8-27	1.55-1.65	4.00-14.00	0.13-0.16	0.0-2.9	.32	.32				---	5.0-20	4.5-5.5	0.1-0.5
LVS:															
Levee.															
OfA:															
Oil-waste land. Fluvaquents.															
RuB:															
Ruston-----	0-6	2-20	1.30-1.70	4.00-14.00	0.09-0.16	0.0-2.9	.28	.28	5	3	86	5.0-10	---	4.5-6.5	0.5-3.0
	6-15	2-20	1.30-1.70	4.00-14.00	0.09-0.16	0.0-2.9	.28	.28				5.0-10	---	4.5-6.5	0.5-1.0
	15-35	18-35	1.40-1.70	4.00-14.00	0.12-0.17	0.0-2.9	.28	.28				---	10-30	4.5-6.0	0.1-0.5
	35-55	10-20	1.30-1.70	4.00-14.00	0.12-0.15	0.0-2.9	.28	.32				---	2.0-10	4.5-6.0	0.1-0.5
	55-80	15-38	1.40-1.70	4.00-14.00	0.12-0.17	0.0-2.9	.28	.28				---	10-30	4.5-6.0	0.0-0.5
RwC:															
Rosalie-----	0-8	5-12	1.45-1.60	42.00-141.00	0.05-0.10	0.0-2.9	.17	.17	5	2	134	5.0-15	---	5.1-6.0	0.5-2.0
	8-32	5-12	1.45-1.60	42.00-141.00	0.05-0.10	0.0-2.9	.17	.17				5.0-15	---	5.1-6.0	0.2-1.2
	32-60	20-30	1.50-1.60	4.00-14.00	0.14-0.17	0.0-2.9	.24	.24				---	10-20	3.6-5.5	0.1-1.0
	60-80	20-30	1.50-1.60	4.00-14.00	0.14-0.17	0.0-2.9	.24	.24				---	10-20	3.6-5.5	0.1-1.0
Warnock-----	0-6	2-18	1.30-1.60	14.00-42.00	0.08-0.12	0.0-2.9	.28	.28	5	3	86	---	5.0-15	3.6-5.5	0.5-2.0
	6-9	1-18	1.30-1.60	14.00-42.00	0.06-0.12	0.0-2.9	.24	.28				---	1.0-15	3.6-5.5	0.5-1.0
	9-34	15-35	1.40-1.65	4.00-14.00	0.12-0.17	0.0-2.9	.24	.24				---	10-25	3.6-5.5	0.1-0.5
	34-80	12-40	1.40-1.65	4.00-14.00	0.10-0.17	0.0-2.9	.24	.24				---	10-25	3.6-5.5	0.0-0.5

Table 16.--Physical and Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Erosion factors			Wind erodi- bility group	Wind erodi- bility index	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Organic matter
							Kw	Kf	T						
	In	Pct	g/cc	µm/sec	In/in	Pct						meq/100 g	meq/100 g	pH	Pct
SaC:															
Sacul-----	0-5	5-20	1.30-1.50	4.00-14.00	0.09-0.12	0.0-2.9	.28	.28	5	3	86	---	5.0-15	4.5-6.0	1.0-3.0
	5-12	2-25	1.40-1.60	4.00-14.00	0.07-0.17	0.0-2.9	.28	.28				---	5.0-15	4.5-6.0	0.1-1.0
	12-31	35-60	1.25-1.40	0.42-1.40	0.15-0.18	6.0-8.9	.32	.32				---	20-45	3.6-5.5	0.1-0.5
	31-50	15-40	1.30-1.45	1.40-4.00	0.14-0.18	0.0-2.9	.28	.32				---	15-40	3.6-5.5	0.0-0.5
	50-80	15-40	1.30-1.45	1.40-4.00	0.14-0.18	0.0-2.9	.28	.32				---	15-40	3.6-5.5	0.0-0.5
SaD:															
Sacul-----	0-5	5-20	1.30-1.50	4.00-14.00	0.09-0.12	0.0-2.9	.28	.28	5	3	86	---	5.0-15	4.5-6.0	1.0-3.0
	5-12	2-25	1.40-1.60	4.00-14.00	0.07-0.17	0.0-2.9	.28	.28				---	5.0-15	4.5-6.0	0.1-1.0
	12-31	35-60	1.25-1.40	0.42-1.40	0.15-0.18	6.0-8.9	.32	.32				---	20-45	3.6-5.5	0.1-0.5
	31-50	15-40	1.30-1.45	1.40-4.00	0.14-0.18	0.0-2.9	.28	.32				---	15-40	3.6-5.5	0.0-0.5
	50-80	15-40	1.30-1.45	1.40-4.00	0.14-0.18	0.0-2.9	.28	.32				---	15-40	3.6-5.5	0.0-0.5
SaE:															
Sacul-----	0-5	5-20	1.30-1.50	4.00-14.00	0.09-0.12	0.0-2.9	.28	.28	5	3	86	---	5.0-15	4.5-6.0	1.0-3.0
	5-12	2-25	1.40-1.60	4.00-14.00	0.07-0.17	0.0-2.9	.28	.28				---	5.0-15	4.5-6.0	0.1-1.0
	12-31	35-60	1.25-1.40	0.42-1.40	0.15-0.18	6.0-8.9	.32	.32				---	20-45	3.6-5.5	0.1-0.5
	31-50	15-40	1.30-1.45	1.40-4.00	0.14-0.18	0.0-2.9	.28	.32				---	15-40	3.6-5.5	0.0-0.5
	50-80	15-40	1.30-1.45	1.40-4.00	0.14-0.18	0.0-2.9	.28	.32				---	15-40	3.6-5.5	0.0-0.5
ScC:															
Sacul-----	0-5	5-20	1.30-1.50	4.00-14.00	0.09-0.12	0.0-2.9	.28	.28	5	3	86	---	5.0-15	4.5-6.0	1.0-3.0
	5-12	2-25	1.40-1.60	4.00-14.00	0.07-0.17	0.0-2.9	.28	.28				---	5.0-15	4.5-6.0	0.5-1.0
	12-31	35-60	1.25-1.40	0.42-1.40	0.15-0.18	6.0-8.9	.32	.32				---	20-45	3.6-5.5	0.1-1.0
	31-50	15-40	1.30-1.45	1.40-4.00	0.14-0.18	0.0-2.9	.28	.32				---	15-40	3.6-5.5	0.0-0.5
	50-80	15-40	1.30-1.45	1.40-4.00	0.14-0.18	0.0-2.9	.28	.32				---	15-40	3.6-5.5	0.0-0.5
Sawyer-----	0-8	15-20	1.35-1.60	4.00-14.00	0.15-0.20	0.0-2.9	.37	.37	5	5	56	---	5.0-15	3.6-5.5	1.0-3.0
	8-13	15-20	1.35-1.60	4.00-14.00	0.15-0.20	0.0-2.9	.37	.37				---	5.0-15	3.6-5.5	1.0-2.0
	13-31	20-40	1.35-1.55	1.40-4.00	0.15-0.20	3.0-5.9	.32	.32				---	10-20	3.6-5.5	0.1-1.0
	31-38	30-60	1.15-1.50	0.42-1.40	0.14-0.20	6.0-8.9	.32	.32				---	20-35	3.6-5.5	0.1-0.5
	38-66	30-60	1.15-1.50	0.42-1.40	0.14-0.20	6.0-8.9	.32	.32				---	20-35	3.6-5.5	0.1-0.5
	66-80	30-60	1.15-1.50	0.42-1.40	0.14-0.20	6.0-8.9	.32	.32				---	20-35	3.6-5.5	0.1-0.5
ScD:															
Sacul-----	0-5	5-20	1.30-1.50	4.00-14.00	0.09-0.12	0.0-2.9	.28	.28	5	3	86	---	5.0-15	4.5-6.0	1.0-3.0
	5-12	2-25	1.40-1.60	4.00-14.00	0.07-0.17	0.0-2.9	.28	.28				---	5.0-15	4.5-6.0	0.5-1.0
	12-31	35-60	1.25-1.40	0.42-1.40	0.15-0.18	6.0-8.9	.32	.32				---	20-45	3.6-5.5	0.1-1.0
	31-50	15-40	1.30-1.45	1.40-4.00	0.14-0.18	0.0-2.9	.28	.32				---	15-40	3.6-5.5	0.0-0.5
	50-80	15-40	1.30-1.45	1.40-4.00	0.14-0.18	0.0-2.9	.28	.32				---	15-40	3.6-5.5	0.0-0.5
Sawyer-----	0-8	15-20	1.35-1.60	4.00-14.00	0.15-0.20	0.0-2.9	.37	.37	5	5	56	---	5.0-15	3.6-5.5	1.0-3.0
	8-13	15-20	1.35-1.60	4.00-14.00	0.15-0.20	0.0-2.9	.37	.37				---	5.0-15	3.6-5.5	0.5-2.0
	13-31	20-40	1.35-1.55	1.40-4.00	0.15-0.20	3.0-5.9	.32	.32				---	10-20	3.6-5.5	0.1-1.0
	31-38	30-60	1.15-1.50	0.42-1.40	0.14-0.20	6.0-8.9	.32	.32				---	20-35	3.6-5.5	0.1-0.5
	38-66	30-60	1.15-1.50	0.42-1.40	0.14-0.20	6.0-8.9	.32	.32				---	20-35	3.6-5.5	0.1-0.5
	66-80	30-60	1.15-1.50	0.42-1.40	0.14-0.20	6.0-8.9	.32	.32				---	20-35	3.6-5.5	0.1-0.5

Table 16.--Physical and Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Erosion factors			Wind erodi- bility group	Wind erodi- bility index	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Organic matter
							Kw	Kf	T						
	In	Pct	g/cc	µm/sec	In/in	Pct						meq/100 g	meq/100 g	pH	Pct
SeC:															
Sawyer-----	0-8	15-20	1.35-1.60	4.00-14.00	0.15-0.20	0.0-2.9	.37	.37	5	5	56	---	5.0-15	3.6-5.5	1.0-3.0
	8-13	15-20	1.35-1.60	4.00-14.00	0.15-0.20	0.0-2.9	.37	.37				---	5.0-15	3.6-5.5	0.5-1.5
	13-31	20-40	1.35-1.55	1.40-4.00	0.15-0.20	3.0-5.9	.32	.32				---	10-20	3.6-5.5	0.5-1.0
	31-38	30-60	1.15-1.50	0.42-1.40	0.14-0.20	6.0-8.9	.32	.32				---	20-35	3.6-5.5	0.1-0.5
	38-66	30-60	1.15-1.50	0.42-1.40	0.14-0.20	6.0-8.9	.32	.32				---	20-35	3.6-5.5	0.1-0.5
	66-80	30-60	1.15-1.50	0.42-1.40	0.14-0.20	6.0-8.9	.32	.32				---	20-35	3.6-5.5	0.1-0.5
SmC:															
Smithdale-----	0-6	2-15	1.40-1.50	14.00-42.00	0.14-0.16	0.0-2.9	.28	.28	5	3	86	---	2.0-15	4.5-5.5	0.5-2.0
	6-10	2-15	1.40-1.50	14.00-42.00	0.14-0.16	0.0-2.9	.28	.28				---	2.0-15	4.5-5.5	0.5-1.5
	10-36	18-33	1.40-1.55	4.00-14.00	0.15-0.17	0.0-2.9	.24	.24				---	10-20	4.5-5.5	0.1-1.0
	36-80	12-27	1.40-1.55	14.00-42.00	0.14-0.16	0.0-2.9	.28	.28				---	10-20	4.5-5.5	0.1-0.5
SmD:															
Smithdale-----	0-6	2-15	1.40-1.50	14.00-42.00	0.14-0.16	0.0-2.9	.28	.28	5	3	86	---	2.0-15	4.5-5.5	0.5-2.0
	6-10	2-15	1.40-1.50	14.00-42.00	0.14-0.16	0.0-2.9	.28	.28				---	2.0-15	4.5-5.5	0.5-1.5
	10-36	18-33	1.40-1.55	4.00-14.00	0.15-0.17	0.0-2.9	.24	.24				---	10-20	4.5-5.5	0.1-1.0
	36-80	12-27	1.40-1.55	14.00-42.00	0.14-0.16	0.0-2.9	.28	.28				---	10-20	4.5-5.5	0.1-0.5
SmE:															
Smithdale-----	0-6	2-15	1.40-1.50	14.00-42.00	0.14-0.16	0.0-2.9	.28	.28	5	3	86	---	2.0-15	4.5-5.5	0.5-2.0
	6-10	2-15	1.40-1.50	14.00-42.00	0.14-0.16	0.0-2.9	.28	.28				---	2.0-15	4.5-5.5	0.5-1.5
	10-36	18-33	1.40-1.55	4.00-14.00	0.15-0.17	0.0-2.9	.24	.24				---	10-20	4.5-5.5	0.1-1.0
	36-80	12-27	1.40-1.55	14.00-42.00	0.14-0.16	0.0-2.9	.28	.28				---	10-20	4.5-5.5	0.1-0.5
StB:															
Smithton-----	0-6	5-18	1.40-1.55	4.00-14.00	0.10-0.15	0.0-2.9	.28	.28	5	3	86	---	2.0-10	4.5-5.5	1.0-3.0
	6-19	5-18	1.40-1.55	4.00-14.00	0.10-0.20	0.0-2.9	.32	.32				---	2.0-10	4.5-5.5	0.5-1.0
	19-31	8-18	1.40-1.55	4.00-14.00	0.11-0.20	0.0-2.9	.32	.32				---	2.0-20	4.5-5.5	0.1-1.0
	31-80	8-30	1.35-1.55	1.40-4.00	0.11-0.20	0.0-2.9	.37	.37				---	5.0-25	4.5-5.5	0.1-0.5
TrB:															
Trebloc-----	0-6	5-20	1.40-1.50	4.00-14.00	0.16-0.20	0.0-2.9	.43	.43	5	5	56	---	5.0-20	4.5-5.5	1.0-3.0
	6-9	5-20	1.40-1.50	4.00-14.00	0.16-0.20	0.0-2.9	.43	.43				---	5.0-20	4.5-5.5	0.5-2.0
	9-25	20-32	1.45-1.55	1.40-4.00	0.15-0.20	3.0-5.9	.37	.37				---	15-25	4.5-5.5	0.5-1.0
	25-34	20-32	1.45-1.55	1.40-4.00	0.15-0.20	3.0-5.9	.37	.37				---	15-25	4.5-5.5	0.5-1.0
	34-61	20-45	1.45-1.55	0.42-1.41	0.14-0.18	3.0-5.9	.37	.37				---	15-30	4.5-5.5	0.1-1.0
	61-80	20-45	1.45-1.55	1.40-4.00	0.14-0.18	3.0-5.9	.37	.37				---	15-30	4.5-5.5	0.1-1.0
UnA:															
Una-----	0-7	28-40	1.40-1.60	0.01-0.42	0.15-0.20	6.0-8.9	.32	.32	5	7	38	---	20-30	4.5-5.5	1.0-3.0
	7-80	28-55	1.40-1.60	0.01-0.42	0.15-0.20	6.0-8.9	.28	.28				---	15-35	4.5-5.5	0.1-1.0
UpA:															
Una-----	0-7	28-40	1.40-1.60	0.01-0.42	0.15-0.20	6.0-8.9	.32	.32	5	7	38	---	20-30	4.5-5.5	1.0-3.0
	7-80	28-55	1.40-1.60	0.01-0.42	0.15-0.20	6.0-8.9	.28	.28				---	15-35	4.5-5.5	0.1-1.0
W:															
Water.															

Table 16.--Physical and Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Erosion factors			Wind erodi- bility group	Wind erodi- bility index	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Organic matter
							Kw	Kf	T						
	In	Pct	g/cc	µm/sec	In/in	Pct						meq/100 g	meq/100 g	pH	Pct
WaC:															
Warnock-----	0-6	2-18	1.30-1.60	14.00-42.00	0.08-0.12	0.0-2.9	.28	.28	5	3	86	---	5.0-15	3.6-5.5	0.5-2.0
	6-9	1-18	1.30-1.60	14.00-42.00	0.06-0.12	0.0-2.9	.24	.28				---	1.0-15	3.6-5.5	0.1-1.0
	9-34	15-35	1.40-1.65	4.00-14.00	0.12-0.17	0.0-2.9	.24	.24				---	10-25	3.6-5.5	0.0-0.5
	34-80	12-40	1.40-1.65	4.00-14.00	0.10-0.17	0.0-2.9	.24	.24				---	10-25	3.6-5.5	0.0-0.5
WsC:															
Warnock-----	0-6	2-18	1.30-1.60	14.00-42.00	0.08-0.12	0.0-2.9	.28	.28	5	3	86	---	5.0-15	3.6-5.5	0.5-2.0
	6-9	1-18	1.30-1.60	14.00-42.00	0.06-0.12	0.0-2.9	.24	.28				---	1.0-15	3.6-5.5	0.5-1.0
	9-34	15-35	1.40-1.65	4.00-14.00	0.12-0.17	0.0-2.9	.24	.24				---	10-25	3.6-5.5	0.1-0.5
	34-80	12-40	1.40-1.65	4.00-14.00	0.10-0.17	0.0-2.9	.24	.24				---	10-25	3.6-5.5	0.0-0.5
Smithdale-----	0-6	2-15	1.40-1.50	14.00-42.00	0.14-0.16	0.0-2.9	.28	.28	5	3	86	---	2.0-15	4.5-5.5	0.5-2.0
	6-10	2-15	1.40-1.50	14.00-42.00	0.14-0.16	0.0-2.9	.28	.28				---	2.0-15	4.5-5.5	0.5-1.5
	10-36	18-33	1.40-1.55	4.00-14.00	0.15-0.17	0.0-2.9	.24	.24				---	10-20	4.5-5.5	0.1-1.0
	36-80	12-27	1.40-1.55	14.00-42.00	0.14-0.16	0.0-2.9	.28	.28				---	10-20	4.5-5.5	0.1-0.5



# Soil Survey of Union County, Arkansas

Table 17.--Risk of Corrosion

(See text for definitions of terms used in this table. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Risk of corrosion	
	Uncoated steel	Concrete
AaA: Amy-----	High	Moderate
AgB: Amy-----	High	Moderate
Gurdon-----	High	High
AnC: Angie-----	High	Moderate
AtA: Aquents-----	High	Low
BbA: Bibb-----	High	Moderate
BrC: Briley-----	Moderate	High
DAM: Dam.		
DdC: Darden-----	Low	High
DdD: Darden-----	Low	High
GrB: Gurdon-----	High	High
GyA: Guyton-----	High	High
HaC: Harleston-----	Moderate	High
LVS: Levee.		
OfA: Oil-waste land. Fluvaquents.		
RuB: Ruston-----	Moderate	Moderate
RwC: Rosalie-----	Low	High
Warnock-----	Moderate	High
SaC: Sacul-----	High	High
SaD: Sacul-----	High	High
SaE: Sacul-----	High	High
ScC: Sacul-----	High	High
Sawyer-----	High	High

# Soil Survey of Union County, Arkansas

Table 17.--Risk of Corrosion--Continued

Map symbol and soil name	Risk of corrosion	
	Uncoated steel	Concrete
ScD:		
Sacul-----	High	High
Sawyer-----	High	High
SeC:		
Sawyer-----	High	High
SmC:		
Smithdale-----	Low	Moderate
SmD:		
Smithdale-----	Low	Moderate
SmE:		
Smithdale-----	Low	Moderate
StB:		
Smithton-----	High	High
TrB:		
Trebloc-----	High	High
UnA:		
Una-----	High	High
UpA:		
Una-----	High	High
W:		
Water.		
WaC:		
Warnock-----	Moderate	High
WsC:		
Warnock-----	Moderate	High
Smithdale-----	Low	Moderate

# Soil Survey of Union County, Arkansas

Table 18.--Water Features

[Depths of layers are in feet. See text for definitions of terms used in this table. Estimates of the frequency of ponding and flooding apply to the whole year rather than to individual months. Absence of an entry indicates that the feature is not a concern or that data were not estimated]

Map symbol and soil name	Hydro- logic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
AaA: Amy-----	C	High	January	0.0-1.0	>6.0	---	---	None	Very brief	Rare
			February	0.0-1.0	>6.0	---	---	None	Very brief	Rare
			March	0.0-1.0	>6.0	---	---	None	Very brief	Rare
			April	0.0-1.0	>6.0	---	---	None	Very brief	Rare
			May	---	---	---	---	None	Very brief	Rare
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	0.0-1.0	>6.0	---	---	None	Very brief	Rare
			AgB: Amy-----	C	Very high	January	0.0-1.0	>6.0	---	---
February	0.0-1.0	>6.0				---	---	None	Very brief	Rare
March	0.0-1.0	>6.0				---	---	None	Very brief	Rare
April	0.0-1.0	>6.0				---	---	None	Very brief	Rare
May	---	---				---	---	None	Very brief	Rare
June	---	---				---	---	None	---	None
July	---	---				---	---	None	---	None
August	---	---				---	---	None	---	None
September	---	---				---	---	None	---	None
October	---	---				---	---	None	---	None
November	---	---				---	---	None	---	None
December	0.0-1.0	>6.0				---	---	None	Very brief	Rare
Gurdon-----	C	Very high				January	1.0-2.0	>6.0	---	---
			February	1.0-2.0	>6.0	---	---	None	Very brief	Rare
			March	1.0-2.0	>6.0	---	---	None	Very brief	Rare
			April	1.0-2.0	>6.0	---	---	None	Very brief	Rare
			May	---	---	---	---	None	Very brief	Rare
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	1.0-2.0	>6.0	---	---	None	Very brief	Rare
			AnC: Angie-----	C	High	January	3.0-5.0	>6.0	---	---
February	3.0-5.0	>6.0				---	---	None	---	None
March	3.0-5.0	>6.0				---	---	None	---	None
April	3.0-5.0	>6.0				---	---	None	---	None
May	---	---				---	---	None	---	None
June	---	---				---	---	None	---	None
July	---	---				---	---	None	---	None
August	---	---				---	---	None	---	None
September	---	---				---	---	None	---	None
October	---	---				---	---	None	---	None
November	---	---				---	---	None	---	None
December	3.0-5.0	>6.0				---	---	None	---	None

# Soil Survey of Union County, Arkansas

Table 18.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
AtA: Aguents-----	---	High		Ft	Ft	Ft				
			January	0.0-1.0	>6.0	---	---	None	Very brief	Rare
			February	0.0-1.0	>6.0	---	---	None	Very brief	Rare
			March	0.0-1.0	>6.0	---	---	None	Very brief	Rare
			April	0.0-1.0	>6.0	---	---	None	Very brief	Rare
			May	0.0-1.0	>6.0	---	---	None	Very brief	Rare
			June	0.0-1.0	>6.0	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	0.0-1.0	>6.0	---	---	None	---	None
			December	0.0-1.0	>6.0	---	---	None	Very brief	Rare
BbA: Bibb-----	D	High								
			January	0.5-1.0	>6.0	---	---	None	Long	Frequent
			February	0.5-1.0	>6.0	---	---	None	Long	Frequent
			March	0.5-1.0	>6.0	---	---	None	Long	Frequent
			April	0.5-1.0	>6.0	---	---	None	Long	Frequent
			May	---	---	---	---	None	Long	Frequent
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	0.5-1.0	>6.0	---	---	None	Long	Frequent
BrC: Briley-----	B	Low	Jan-Dec	---	---	---	---	None	---	None
DAM: Dam-----	---	---	Jan-Dec	---	---	---	---	None	---	None
DdC: Darden-----	A	Low	Jan-Dec	---	---	---	---	None	---	None
DdD: Darden-----	A	Low	Jan-Dec	---	---	---	---	None	---	None
GrB: Gurdon-----	C	Very high								
			January	1.0-2.0	>6.0	---	---	None	Very brief	Rare
			February	1.0-2.0	>6.0	---	---	None	Very brief	Rare
			March	1.0-2.0	>6.0	---	---	None	Very brief	Rare
			April	1.0-2.0	>6.0	---	---	None	Very brief	Rare
			May	---	---	---	---	None	Very brief	Rare
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	1.0-2.0	>6.0	---	---	None	Very brief	Rare

# Soil Survey of Union County, Arkansas

Table 18.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
GyA: Guyton-----	D	High		Ft	Ft	Ft				
			January	0.0-1.0	>6.0	---	---	None	Long	Frequent
			February	0.0-1.0	>6.0	---	---	None	Long	Frequent
			March	0.0-1.0	>6.0	---	---	None	Long	Frequent
			April	0.0-1.0	>6.0	---	---	None	Long	Frequent
			May	0.0-1.0	>6.0	---	---	None	Long	Frequent
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	0.0-1.0	>6.0	---	---	None	Long	Frequent
HaC: Harleston-----	C	Medium								
			January	2.0-3.0	>6.0	---	---	None	---	None
			February	2.0-3.0	>6.0	---	---	None	---	None
			March	2.0-3.0	>6.0	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	2.0-3.0	>6.0	---	---	None	---	None
			December	2.0-3.0	>6.0	---	---	None	---	None
LVS: Levee-----	---	---	Jan-Dec	---	---	---	---	None	---	---
OfA: Oil-waste land-	---	Negligible								
			January	0.0	>6.0	0.0-0.5	Very long	Frequent	Very long	Frequent
			February	0.0	>6.0	0.0-0.5	Very long	Frequent	Very long	Frequent
			March	0.0	>6.0	0.0-0.5	Very long	Frequent	Very long	Frequent
			April	0.0	>6.0	0.0-0.5	Very long	Frequent	Very long	Frequent
			May	0.0	>6.0	0.0-0.5	Very long	Frequent	Very long	Frequent
			June	0.0	>6.0	0.0-0.5	Very long	Frequent	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	0.0	>6.0	---	---	None	---	None
			December	0.0	>6.0	0.0-0.5	Very long	Frequent	Very long	Frequent
Fluvaquents----	---	High								
			January	0.0-1.0	>6.0	---	---	None	Very long	Frequent
			February	0.0-1.0	>6.0	---	---	None	Very long	Frequent
			March	0.0-1.0	>6.0	---	---	None	Very long	Frequent
			April	0.0-1.0	>6.0	---	---	None	Very long	Frequent
			May	0.0-1.0	>6.0	---	---	None	Very long	Frequent
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	0.0-1.0	>6.0	---	---	None	Very long	Frequent
RuB: Ruston-----	B	Low	Jan-Dec	---	---	---	---	None	---	None
RwC: Rosalie-----	B	Low	Jan-Dec	---	---	---	---	None	---	None

# Soil Survey of Union County, Arkansas

Table 18.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
RwC: Warnock-----	B	Medium		Ft	Ft	Ft				
			January	2.5-4.0	4.0-5.5	---	---	None	---	None
			February	2.5-4.0	4.0-5.5	---	---	None	---	None
			March	2.5-4.0	4.0-5.5	---	---	None	---	None
			April	2.5-4.0	4.0-5.5	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	2.5-4.0	4.0-5.5	---	---	None	---	None
SaC: Sacul-----	C	High								
			January	2.0-4.0	>6.0	---	---	None	---	None
			February	2.0-4.0	>6.0	---	---	None	---	None
			March	2.0-4.0	>6.0	---	---	None	---	None
			April	2.0-4.0	>6.0	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	2.0-4.0	>6.0	---	---	None	---	None
SaD: Sacul-----	C	High								
			January	2.0-4.0	>6.0	---	---	None	---	None
			February	2.0-4.0	>6.0	---	---	None	---	None
			March	2.0-4.0	>6.0	---	---	None	---	None
			April	2.0-4.0	>6.0	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	2.0-4.0	>6.0	---	---	None	---	None
SaE: Sacul-----	C	Very high								
			January	2.0-4.0	>6.0	---	---	None	---	None
			February	2.0-4.0	>6.0	---	---	None	---	None
			March	2.0-4.0	>6.0	---	---	None	---	None
			April	2.0-4.0	>6.0	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	2.0-4.0	>6.0	---	---	None	---	None

# Soil Survey of Union County, Arkansas

Table 18.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
ScC: Sacul-----	C	High		Ft	Ft	Ft				
			January	2.0-4.0	>6.0	---	---	None	---	None
			February	2.0-4.0	>6.0	---	---	None	---	None
			March	2.0-4.0	>6.0	---	---	None	---	None
			April	2.0-4.0	>6.0	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	2.0-4.0	>6.0	---	---	None	---	None
Sawyer-----	C	Medium								
			January	1.5-2.5	2.0-3.0	---	---	None	---	None
			February	1.5-2.5	2.0-3.0	---	---	None	---	None
			March	1.5-2.5	2.0-3.0	---	---	None	---	None
			April	1.5-2.5	2.0-3.0	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	1.5-2.5	2.0-3.0	---	---	None	---	None
ScD: Sacul-----	C	High								
			January	2.0-4.0	>6.0	---	---	None	---	None
			February	2.0-4.0	>6.0	---	---	None	---	None
			March	2.0-4.0	>6.0	---	---	None	---	None
			April	2.0-4.0	>6.0	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	2.0-4.0	>6.0	---	---	None	---	None
Sawyer-----	C	Medium								
			January	1.5-2.5	2.0-3.0	---	---	None	---	None
			February	1.5-2.5	2.0-3.0	---	---	None	---	None
			March	1.5-2.5	2.0-3.0	---	---	None	---	None
			April	1.5-2.5	2.0-3.0	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	1.5-2.5	2.0-3.0	---	---	None	---	None



# Soil Survey of Union County, Arkansas

Table 18.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
SeC: Sawyer-----	C	Medium		Ft	Ft	Ft				
			January	1.5-2.5	2.0-3.0	---	---	None	---	None
			February	1.5-2.5	2.0-3.0	---	---	None	---	None
			March	1.5-2.5	2.0-3.0	---	---	None	---	None
			April	1.5-2.5	2.0-3.0	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	1.5-2.5	2.0-3.0	---	---	None	---	None
SmC: Smithdale-----	B	Medium	Jan-Dec	---	---	---	---	None	---	None
SmD: Smithdale-----	B	Medium	Jan-Dec	---	---	---	---	None	---	None
SmE: Smithdale-----	B	High	Jan-Dec	---	---	---	---	None	---	None
StB: Smithton-----	D	Very high	January	0.0-1.0	>6.0	---	---	None	---	None
			February	0.0-1.0	>6.0	---	---	None	---	None
			March	0.0-1.0	>6.0	---	---	None	---	None
			April	0.0-1.0	>6.0	---	---	None	---	None
			May	0.0-1.0	>6.0	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	0.0-1.0	>6.0	---	---	None	---	None
TrB: Trebloc-----	D	Negligible	January	0.5-1.0	>6.0	---	---	None	---	None
			February	0.5-1.0	>6.0	---	---	None	---	None
			March	0.5-1.0	>6.0	---	---	None	---	None
			April	0.5-1.0	>6.0	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None
UnA: Una-----	D	High	January	0.5-1.0	>6.0	---	---	None	Long	Frequent
			February	0.5-1.0	>6.0	---	---	None	Long	Frequent
			March	0.5-1.0	>6.0	---	---	None	Long	Frequent
			April	0.5-1.0	>6.0	---	---	None	Long	Frequent
			May	---	---	---	---	None	Long	Frequent
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	0.5-1.0	>6.0	---	---	None	---	None
			December	0.5-1.0	>6.0	---	---	None	Long	Frequent

# Soil Survey of Union County, Arkansas

Table 18.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
UpA: Una-----	D	Negligible		Ft	Ft	Ft				
			January	0.0-1.0	>6.0	0.5-2.0	Long	Frequent	Long	Frequent
			February	0.0-1.0	>6.0	0.5-2.0	Long	Frequent	Long	Frequent
			March	0.0-1.0	>6.0	0.5-2.0	Long	Frequent	Long	Frequent
			April	0.0-1.0	>6.0	0.5-2.0	Long	Frequent	Long	Frequent
			May	0.0-1.0	>6.0	0.5-2.0	Long	Frequent	Long	Frequent
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	0.0-1.0	>6.0	---	---	None	---	None
			December	0.0-1.0	>6.0	0.5-2.0	Long	Frequent	Long	Frequent
W: Water.										
WaC: Warnock-----	B	Low								
			January	2.5-4.0	4.0-5.5	---	---	None	---	None
			February	2.5-4.0	4.0-5.5	---	---	None	---	None
			March	2.5-4.0	4.0-5.5	---	---	None	---	None
			April	2.5-4.0	4.0-5.5	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	2.5-4.0	4.0-5.5	---	---	None	---	None
WsC: Warnock-----	B	Low								
			January	2.5-4.0	4.0-5.5	---	---	None	---	None
			February	2.5-4.0	4.0-5.5	---	---	None	---	None
			March	2.5-4.0	4.0-5.5	---	---	None	---	None
			April	2.5-4.0	4.0-5.5	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	2.5-4.0	4.0-5.5	---	---	None	---	None
Smithdale-----	B	Low	Jan-Dec	---	---	---	---	None	---	None

# Soil Survey of Union County, Arkansas

Table 19.--Hydric Soils

[Only those map unit components that are rated as hydric are listed. Definitions of hydric criteria codes are at the end of the table]

Map symbol and map unit name	Component	Percent of map unit	Landform	Hydric rating	Hydric criteria
<b>AaA:</b>					
Amy silt loam, 0 to 1 percent slopes, rarely flooded	Amy	85	Stream terraces	Yes	2B3
	Guyton	5	Flood plains	Yes	2B3, 4
	Smithton	3	Stream terraces	Yes	2B3
	Aquults	2	Depressions	Yes	2B3, 3
<b>AgB:</b>					
Amy-Gurdon complex, 0 to 3 percent slopes, rarely flooded	Amy	50	Stream terraces	Yes	2B3
	Guyton	5	Flood plains	Yes	2B3, 4
	Smithton	3	Stream terraces	Yes	2B3
	Aquents	2	Depressions	Yes	2B3, 3
<b>AnC:</b>					
Angie fine sandy loam, 1 to 8 percent slopes	Aquults	5	Depressions	Yes	2B3, 3
	Bibb	3	Flood plains	Yes	2B3, 4
<b>AtA:</b>					
Aquents, 0 to 1 percent slopes, rarely flooded	Aquents	90	Flood plains	Yes	2B3, 3
<b>BbA:</b>					
Bibb fine sandy loam, 0 to 1 percent slopes, frequently flooded	Bibb	85	Flood plains	Yes	2B3, 4
	Aquents	5	Depressions	Yes	2B3, 3, 4
	Guyton	5	Flood plains	Yes	2B3, 4
<b>GrB:</b>					
Gurdon silt loam, 0 to 3 percent slopes, rarely flooded	Amy	5	Stream terraces	Yes	2B3
	Aquults	5	Depressions	Yes	2B3, 3
	Smithton	5	Stream terraces	Yes	2B3
<b>GyA:</b>					
Guyton silt loam, 0 to 1 percent slopes, frequently flooded	Guyton	85	Flood plains	Yes	2B3, 4
	Amy	5	Stream terraces	Yes	2B3
	Una	5	Flood plains	Yes	2B3, 3, 4
	Smithton	3	Stream terraces	Yes	2B3
	Aquents	2	Depressions	Yes	2B3, 3, 4
<b>HaC:</b>					
Harleston fine sandy loam, 1 to 8 percent slopes	Aquults	5	Depressions	Yes	2B3, 3
	Smithton	5	Stream terraces	Yes	2B3
<b>OfA:</b>					
Oil-waste land-Fluvaquents complex, 0 to 1 percent slopes, frequently flooded	Fluvaquents	40	Flood plains	Yes	2B3, 3, 4
	Aquents	10	Depressions	Yes	2B3, 3, 4
<b>SaC:</b>					
Sacul fine sandy loam, 1 to 8 percent slopes	Trebloc	5	Depressions	Yes	2B3
	Aquults	5	Depressions	Yes	2B3, 3
<b>ScC:</b>					
Sacul-Sawyer complex, 1 to 8 percent slopes	Aquults	5	Depressions	Yes	2B3, 3
	Trebloc	5	Depressions	Yes	2B3
<b>SeC:</b>					
Sawyer very fine sandy loam, 1 to 8 percent slopes	Trebloc	5	Depressions	Yes	2B3
	Aquults	3	Depressions	Yes	2B3, 3
<b>StB:</b>					
Smithton fine sandy loam, 0 to 2 percent slopes	Smithton	85	Stream terraces	Yes	2B3
	Aquults	5	Depressions	Yes	2B3, 3
	Guyton	5	Flood plains	Yes	2B3, 4
	Fluvaquents	2	Flood plains	Yes	2B3, 4
<b>TrB:</b>					
Trebloc silt loam, 0 to 2 percent slopes	Trebloc	90	Depressions	Yes	2B3
	Aquults	3	Depressions	Yes	2B3, 3

# Soil Survey of Union County, Arkansas

Table 19.--Hydric Soils--Continued

Map symbol and map unit name	Component	Percent of map unit	Landform	Hydric rating	Hydric criteria
UnA: Una silty clay loam, 0 to 1 percent slopes, frequently flooded	Una Amy Aquents Guyton	85 5 5 5	Flood plains Stream terraces Depressions Flood plains	Yes Yes Yes Yes	2B3, 4 2B3 2B3, 3, 4 2B3, 4
UpA: Una silty clay loam, 0 to 1 percent slopes, ponded	Una Amy Aquents	85 5 5	Flood plains Stream terraces Depressions	Yes Yes Yes	2B3, 3, 4 2B3 2B3, 3, 4

## Explanation of hydric criteria codes:

1. All Histels except for Folistels, and Histosols except for Folists.
2. Soils in Aquic suborders, great groups, or subgroups, Albolls suborder, Historthels great group, Histoturbels great group, Pachic subgroups, or Cumulic subgroups that:
  - A. are somewhat poorly drained and have a water table at the surface (0.0 feet) during the growing season, or
  - B. are poorly drained or very poorly drained and have either:
    - 1.) a water table at the surface (0.0 feet) during the growing season if textures are coarse sand, sand, or fine sand in all layers within a depth of 20 inches, or
    - 2.) a water table at a depth of 0.5 foot or less during the growing season if permeability is equal to or greater than 6.0 in/hr in all layers within a depth of 20 inches, or
    - 3.) a water table at a depth of 1.0 foot or less during the growing season if permeability is less than 6.0 in/hr in any layer within a depth of 20 inches.
3. Soils that are frequently ponded for long or very long duration during the growing season.
4. Soils that are frequently flooded for long or very long duration during the growing season.

# Soil Survey of Union County, Arkansas

Table 20.--Taxonomic Classification of the Soils

Soil name	Family or higher taxonomic class
Amy-----	Fine-silty, siliceous, semiactive, thermic Typic Endoaquults
Angie-----	Fine, mixed, semiactive, thermic Aquic Paleudults
Aquents-----	Aquents
Bibb-----	Coarse-loamy, siliceous, active, acid, thermic Typic Fluvaquents
Briley-----	Loamy, siliceous, semiactive, thermic Arenic Paleudults
Darden-----	Thermic, coated Typic Quartzipsamments
Fluvaquents-----	Fluvaquents
Gurdon-----	Coarse-silty, siliceous, semiactive, thermic Aquic Paleudults
Guyton-----	Fine-silty, siliceous, active, thermic Typic Glossaqualfs
Harleston-----	Coarse-loamy, siliceous, semiactive, thermic Aquic Paleudults
Rosalie-----	Loamy, siliceous, active, thermic Arenic Paleudults
Ruston-----	Fine-loamy, siliceous, semiactive, thermic Typic Paleudults
Sacul-----	Fine, mixed, active, thermic Aquic Hapludults
Sawyer-----	Fine-silty, siliceous, semiactive, thermic Aquic Paleudults
Smithdale-----	Fine-loamy, siliceous, subactive, thermic Typic Hapludults
Smithton-----	Coarse-loamy, siliceous, semiactive, thermic Typic Paleaquults
Trebloc-----	Fine-silty, siliceous, active, thermic Typic Paleaquults
Una-----	Fine, mixed, active, acid, thermic Typic Epiaquepts
Warnock-----	Fine-loamy, siliceous, semiactive, thermic Typic Paleudults



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